# Transition to survival: Enterprise restructuring in twenty East German and Hungarian companies

by

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Errors and omissions remain my own.

**Summary**

Using case studies from twenty East German and Hungarian companies this thesis examines the process of enterprise restructuring in transition economies. The data was specifically collected for such a comparative study and benefits from a relatively large number of cases, an unusual amount of internal consistency and depth. The broad theme is one of disintegration and integration. I examine how in response to increasing market pressures companies change their vertical integration, including the in-house provision of social services, how they functionally integrate with their investors and restructure their forward and backward linkages. The aim is to provide a comprehensive picture of the restructuring process as it affects the crucial aspects of a company's operations. By explicitly relating my findings to the empirical and theoretical literature on enterprise restructuring, vertical integration and economic geography I hope to contribute to existing controversies and open up new avenues of research.

A noticeable pattern in my data is that the academic literature and investors frequently endorsed restructuring measures which turned out to be 'right' for the East German companies and 'wrong' for the Hungarian ones. The second startling feature of my case studies is the evidence of total industrial devastation in East Germany. I argue that these observations are related to three recurring themes: local idiosyncrasies matter, the past matters and the future should not be rushed.

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# Introduction

This Ph.D. examines the restructuring challenges posed by transition using comparative case study evidence from twenty East German and Hungarian enterprises. The broad theme is one of disintegration and integration. I examine how in response to increasing market pressures companies change their vertical integration, including the in-house provision of social services, how they functionally integrate with their investors and restructure their forward and backward linkages. Enterprise restructuring in transition economies is an extraordinary economic and historical occurrence. This process is not only interesting in its own right, but also poses a multitude of academic, policy and practical challenges.

The aim of this Ph.D. is to provide a comprehensive picture of the restructuring process as it affects the crucial aspects of a company's operations. Transition economics still suffers from data scarcity, particularly when questions at the company-level are concerned. Especially in the early transition phase this scarcity has arguably contributed to the dogmatism based on pre-conceptions, which is occasionally evident in the academic literature. This Ph.D. aims to make a contribution by providing detailed empirical evidence which will help in distinguishing the relevant theories and interpretations from the less relevant ones. In doing so this study benefits from a relatively large number of in-depth comparative case studies enjoying an unusual amount of consistency. Only one researcher was involved who spoke each interviewee's native language and used the same extensive questionnaire throughout.

Chapter 1 examines the way in which previously highly integrated enterprises have restructured their vertical boundaries. In particular I ask whether, as suggested by the literature on enterprise restructuring, vertical disintegration leads to transaction cost savings and efficiency gains. Chapter 2 maintains a focus on the firms' boundaries by examining the way in which enterprises have restructured the extensive social services they used to provide. Empirical hypotheses are examined which suggest that the extent to which a company stops the internal provision of social services is a good indicator of its overall restructuring effort. Chapter 3 deals with the role of foreign direct investors in the strategic restructuring of their subsidiaries. The notion that companies with FDI will outperform their rivals because of knowledge transfer from their investor and his role in introducing new products and production methods is examined both qualitatively and statistically. Using the literature on economic geography as an interpretative framework Chapter 4 deals with the changes which have occurred in the companies' forward and backward linkages. Chapter 5 concludes by arguing that in enterprise restructuring local idiosyncrasies matter, the past matters and the future should not be rushed.

Despite the fact that surveys rather than case studies are typically used in economics, case studies play a significant role in other areas of social science. Case studies allow us to focus on naturally occurring units, such as an individual company. By relinquishing typicality, they make possible the 'thick' description of a phenomenon. Case studies allow for an in-depth understanding of context and situation, which is especially important when examining the complex and multifaceted process of

adaptation and change companies in transition economies are subject to. Case studies complement surveys because are able to indicate the qualitative reasons behind statistical regularities, which on their own can be consistent with several explanations or interpretations. In addition the big transition induced changes in the boundaries of firms make the traditional use of large firm databases (even if these were readily available with reliable data) largely irrelevant in the key initial restructuring phase.[1]

A comparison between East Germany and Hungary can yield insights which are relevant to other transition economies as well. Both Hungary and East Germany benefit from a relatively stable political and social environment. For this reason these countries allow us to focus on the 'economic' side of transition, rather than on questions as to how economic agents behave under political, legal and social uncertainty. Consequently both Hungary and East Germany provide an example of what one might expect to happen at the enterprise level in other countries once there is some stability and legality in the overall framework they operate in. At the same time Hungary and East Germany represent important differences within this relatively advanced and 'smooth' transition group, in particular along the shock therapy and gradualism dimension; their comparison can provide a more general indication of the relative merits of these two approaches to transition.

[1] These advantages of case studies have to be weighed against the fact that they are only able to provide us with snapshots of what is happening and that they do not allow us to generalise to entire populations, only to empirical and theoretical hypotheses. An ideal procedure is, of course, to combine case study evidence with survey evidence. In this study this is partly done by explicitly taking account of the findings made in and puzzles raised by surveys conducted by other researchers.

The reader will find that in many instances the changes examined have also occurred over time in companies in more advanced market economies. For example, I find that in restructuring their boundaries firms closed some product lines and replaced them with new ones. They stopped in-house input production and started using some subcontractors for physical and non-physical inputs. The reader might well be left with a feeling of "so what?". The answer to that question lies not so much in the individual changes themselves, but rather in the magnitude and diversity of the pressures which the companies examined simultaneously faced and the resulting speed and complexity of change.

To gain an impression of the pressures which companies in transition economies face, one has to consider that they are not just -as is common for companies operating in more stable and advanced market economies- faced with rapidly changing market conditions but that also the entire legal, political and economic framework within which they operate is simultaneously changing as well. To put it differently, companies in a transition environment are not just faced with a situation where the parameters of the game are changing but one where also the rules of the game have suffered a structural break.

It is the all-encompassing nature of the changes which all companies are simultaneously exposed to which makes a sit-and-wait response almost infeasible. Companies have to try and adapt by introducing targeted changes to all aspects of their operations if they do not want to be entirely left behind by their fast-moving

environment.[2] It is not activism which is called for, but genuine change: The company has to find new markets, new products, new supply networks, new ways of organising production and learn the new rules of the game (that is, for example, learn about marketing, consumer wants, quality control, legal requirements, new political lobbies etc.). Furthermore, a company has to find and learn all these things more or less at the same time and as soon as possible.

**Information about the companies visited and the empirical evidence collected**

Although one cannot speak of strictly matched, randomly selected or representative samples, the companies in my data set were selected to allow for meaningful comparisons between Hungary and East Germany. The listing of companies provided in the Appendix summarises the information about each company.[3] In both the Hungarian and East German data I have focused on manufacturing companies. A few construction companies were included in order to be able to examine, for example, issues arising from the extent to which a company's operations are localised due to factors such as high transportation costs for its final products and inputs. In both countries I have focused on companies which used to be very large, that is have at least 2000 employees, before 1990. These are companies which by their very size, prominence and high degree of vertical integration were likely to face big restructuring challenges. In both countries I included some medium-sized companies

[2] This assumes that the force for change in the country and industrial sector at hand has already developed so much momentum that it is not a feasible policy for managers of the company to try and obliterate it or at least try and control it through forming alliances with political and bureaucratic forces.

[3] The Appendices to the Conclusion contain the questionnaire used and discuss the statistical questions involved.

in order to be able to examine under what circumstances a company's initial size effects its restructuring outcomes. Overall the Hungarian and East German companies included had a very similar mean size in 1990. Similarly, although companies with FDI dominate my data set, in both data sets I included companies without a direct investor for comparative purposes.

It has to be noted, however, that the ultimate composition of my data set was not determined by my selection criteria but by the companies' willingness to participate. This is likely to lead to a bias in favour of companies which are generally co-operative, open, have nothing to hide and are hence more likely to be dynamic and successful. However open a company is, the promise of anonymity generally was a precondition for their participation.

I collected data pertaining to a company's situation in 1990 and data on subsequent changes. With the aim of allowing for all aspects of a company's restructuring challenge I focused on changes in each company's

- vertical integration,
- its integration with and relationship to its investor,
- changes in its human resource policies and the general handling of labour shedding,
- changes in its product range, production methods, product markets, competitive situation as well as
- the regional effects of FDI and on changes in the company's procurement policies.

The companies have been numbered though from 1 to 9 in Germany, with the prefix D indicating that this is a German company and from H1 to H11 in Hungary. In each company I used the same 38 page questionnaire (see Appendix 1 to the Conclusion) and every interview was conducted in the interviewee's native language. Although I made sure that the basic questionnaire was answered in all companies, I regularly encouraged interview partners to elaborate and digress, since this is usually the context in which the most interesting information was revealed. I revisited a company until I felt that all my questions had been answered satisfactorily and truthfully, frequently asking several different people to give their version of events. As a matter of principle the trade union representative and the personnel manager were asked the same set of questions. Overall I conducted in-depth interviews with (at least) the managing director, personnel manager, trade union representative, procurement manager and production manager in each company. Each individual interview was semi-structured and lasted at least one hour. The information obtained in the interviews was supplemented with company reports, archival material and newspaper articles.

**Company D1** belongs to the building sector and currently has 600 employees. In 1995 the value of its sales was about 150 million DM. In 1990 it had 2000 employees and was one of the most important employers in the small town just outside Berlin in

which it is located. In March 1991 the company was acquired by a Swedish investor operating in the same industrial sector. I visited company D1 on 13.08.96 and conducted interviews with the procurement manager, the Vice-trade union representative, the personnel manger and the manager in charge of logistics and organisation. Each interview lasted for about two hours and all of these managers had been with the company for many years. I obtained back issues of the magazine for employees of company D1, company reports, brochures of building projects in which the company has been involved in over the years, a brochure on quality management and copies of algorithms used by the manager in charge of procurement when evaluating suppliers and subcontractors and quality control documents. I also obtained a case study report published in the book " Privatisierte und was aus ihnen geworden ist", Verlag Die Wirtschaft, 1994.

**Company D2** belongs to the building sector as well and has currently 248 employees. In 1995 the value of its sales was about 33 million DM. In 1990 the company had 330 employees and was only active in the quarter of East Berlin in which it is located. In July 1992 it was acquired by a local investor with a lot of experience in the West-Berlin building sector. To complement my interviews with the managing director, trade union representative and procurement manager I obtained a company report and a list of references for the company. Furthermore there exists a case study report published in the book " Privatisierte und was aus ihnen geworden ist", Verlag Die Wirtschaft, 1994.

**Company D3** is a steel processing plant with 270 employees and sales of 69,3 million DM in 1995. The company is a very interesting case study since in 1993 it was acquired by the East Slovak Steel Works, a company with 15000 employees. Not only is it most unusual to find FDI into Eastern Germany coming from another transition economy but also the vertical integration is the other way around as is usually expected, with the investor supplying its acquisition with inputs. Company D3 had 2021 employees in 1990 and is located in town which used to be one of the industrial centres of the Brandenburg region but has experienced a significant decline in its industrial base since reunification. I visited the company on 11.09 and 20.09.1996. I conducted interviews with the manager in charge of procurements, the manager in charge of logistics, who had been until recently in charge of sales for the last twenty years, the personnel manager and the worker's representative. I was also given an extended tour of the factory with an explanation of the machines and production processes. Further supporting material was obtained in the form of the company brochure and report as well as in numerous newspapers from the local as well as national and international press, including an article in Business Central Europe, October 1996, on the East Slovak Steel Works.

**Company D4** is a tyre manufacturer located in the same town as Company D1. The company has 722 employees currently and used to have 9500 employees, which made it the single most important employer in its home town. Current sales amount to 135 million DM (1995), with 170 million DM being planned for 1996. In January 1995 company D4 is acquired by a West German tyre maker, who in turn belongs to a

Japanese conglomerate. I visited company D4 20.08.96 and conducted two-hour interviews with the manager in charge of production, the personnel manager, the worker's representative and the manager in charge of procurements. Further supporting material was obtained in the form of a copy of the contract between the employees and the managers of the company concerning working hours, wages and employee numbers which is in force while the company transfers from one trade union (Chemie-Papier-Keramik) to another (Bergbau-Chemie-Energie), cuttings from local newspapers, back issues of all press releases made by the company as well as a copy of the quality management booklet compiled for the managers of the company which includes, among others, documents dealing with the internal organisation of quality control, internal and external audits, project management and customer relations .

**Company D5** is a pharmaceuticals company in (East) Berlin with 1033 employees, down from 2700 employees in 1990. In 1992 company D5 was acquired by an Italian pharmaceuticals company. In 1995 its sales amounted to 256 million DM. I visited company D5 on 05.09 and 06.09.96 and conducted interviews with the manager in charge of Gesundheitspolitik und Unternehmensführung (health policies), the manager in charge of sales and the manager in charge of procurements, the personnel manager and the worker's representative. Supporting material was obtained in the form of a complete set (starting in 1991) of back issues of the magazine published for the employees of company D5, company reports of 1995 and 1991 product price lists and brochures as well as several confidential audit reports of suppliers. Furthermore

there is a case study report of this company in " Privatisierte und was aus ihnen geworden ist", Verlag Die Wirtschaft, 1994.

**Company D6** is of interest because it is an example of a failed privatisation. This company used to belong to the VEB Kombinat Kraftwerksanlagenbau in which 40.000 employees were organised in 20 companies. The company out of which D6 developed had 6500 employees. Before 1990 company D6 designed and built components for both nuclear and fossil fuel power stations, but had an exclusive responsibility within the conglomerate for designing and building nuclear power stations. In 1995 the company had 320 employees and sales amounting to 58 million DM. Since 1990 company D6 has been specialising in designing and co-ordinating the building of small and medium sized fossil fuel power stations. In 1992 the company had been sold to a consortium consisting of an American pipeline operator and a West German power station builder, with the latter however pulling out of the deal at the last moment. The privatisation to the pipeline operator did not prove a success and to save company D6, the Treuhand intervened by instituting a *treuhandlerischer Verwalter*, that is an administrator who is the formal owner of 100% of the company's shares and is supposed to restructure the company with the aim of reprivatisation. Thus the Treuhand in effect bought back company D6. When I visited the company in 1996, it was conducting negotiations with several potential investors and was hoping to be privatised before the end of the year. It was facing serious economic problems as was reflected both by the lack of hope its employees

had for the future of the company and in comments made by managers in company D8 which used to belong to the same Conglomerate as company D6.

In a follow-up call in May 1998 I was told that the company D6 went bankrupt on 30.11.97. It was then taken over with a third of its employees by a consortium consisting to 51% of a German and to 49% of an English power station builder.

I visited the company on 21.08. and 24.09.96 and interviewed the manager in charge of public relations, the worker's representative, the manager in charge of procurements and the personnel manager. Supporting material was obtained in the form of the 1994 and 1995 company reports as well as a list of references for the company.

**Company D7,** a civil engineering company, is an unusual case because its investor, an internationally operative Austrian holding company with 10000 employees world-wide, went bankrupt in the beginning of 1995. Interestingly the investor had also bought what managers in company D7 refer to as their "sister company", an industrial site builder who was of a similar size as D7 before reunification and belonged to the same Conglomerate. The sister company, together with the investor's numerous acquisition in all of Eastern Europe followed the investor into bankruptcy. Company D7 is the only member of the conglomerate who survived and is currently up for sale by the Treuhand again. Company D7 had 6800 employees in 1990 of which 800 are left by the end of 1996. Its sales amounted to 220 million DM in 1996 with 210 being

expected for 1997. I visited the company on 17.12.96 and conducted interviews with the personnel manager, the trade union representative, the Technischer Leiter (the manger in charge of technical questions) and the procurement manager. I further obtained a case study published in "Privatisierte und was aus ihnen geworden ist", Verlag Die Wirtschaft, 1994 as well as company reports for 1995 and 1994, an internal exposé concerning developments since 1990, copies from the internally developed training programme, evaluation sheets for suppliers, the investor's company report for 1992 and excerpts from training documents provided by the investor.

**Company D8** is a power station components supplier specialising in gas turbines. In 1991 D8 was bought by a large Swedish-Swiss conglomerate. In 1990 the company had 4500 employees, down to 500 by the end of 1996. Its sales volume in 1996 amounted to 120 million DM. Company D8 used to belong to the same conglomerate as company D6 and still occasionally supplies turbines or services for projects co-ordinated by company D6. I visited company D8 on 19.12.96 and conducted interviews with the manager in charge of PR and the management of change. He seemed to be the only manager left who had a good historical experience of the company and overview of the parameters of change. He also answered questions concerning industrial relations, because the position of the personnel manger was just being filled with a new candidate. I also talked to the trade union representative and obtained a case study published in "Privatisierte und was aus ihnen geworden ist",

Verlag Die Wirtschaft, 1994, as well as a company report for 1995 and an expose of the history of the company.

**Company D9** is a gear factory acquired by a West German company operating in the same industrial sector. Company D9's investor has shares in 34 companies in 15 countries, including South and North America and Eastern Europe, a sales volume of 7,2 billion DM and 33 892 employees. Company D9 itself has 750 employees, down from 3000 in 1990 and a sales volume of 213 million DM (1996). I visited the company on 18.12.96, conducted interviews with the manager in charge of controlling, the trade union representative and was allowed to join an end of year inspection of the entire factory. I also obtained a company report of the investor for 1996, a brochure on quality management, an exposé of the products, a case study published in "Privatisierte und was aus ihnen geworden ist", Verlag Die Wirtschaft, 1994, as well as back issues of the magazine for employees.

**Company H1** belongs to the food industry. The company is active in crushing and refining oilseeds and has a virtual monopoly in the Hungarian market for sunflower oil. In 1996 the net value of sales generated by company H1 was 292 million DM. At the time of its privatisation in 1992 to a French investor from the same sector the company had 2100 employees in six factories. By 1997 the overall number of employees in the three remaining factories had been reduced to 640. I visited the head offices of the company on 15.04.97 and 29.07.97. I conducted a two and a half hour interview with the general manager and a one hour interview with a trade union

representative. The general manager thought it unnecessary for me to talk to the personnel and procurements managers separately since in his opinion I would receive the very same answers from them as from him, after all "we have all been here for very long." From the head of marketing I obtained leaflets which the company publishes as part of a heart awareness campaign along the lines of "eat less animal fat and more vegetable fats", the investor's annual reports of 1995 and 1996 and a collection of newspaper articles published in the national media about the company.

**Company H2** is also active in the food industry. Its main product groups are instant drinks, convenience foods and sweets, generating net sales of 133 million DM in 1996. Overall, the company has currently 1396 employees, down from 2400 in 1992, the year of its privatisation to a Swiss multinational from the same industrial sector. The factory I visited produces chocolate drinks and wafers. Since 1992 the number of its employees has fallen from 600 to just 50 people. I visited the head office of the company as well as its factory on 20., 21, 22.05.97. I conducted interviews with the general manager of the factory, the manager in charge of product development who also acts as a trade union representative, the personnel manager and the head of procurement. Each interview lasted for about one and a half hours. In addition I also obtained the investor's company report for 1995.

**Company H3** belongs to the food industry as well. Originally it was part of the same industrial structure as most of what was become company H2. H3 specialises in chocolates and cookies. Its net sales amounted to 101 million DM in 1996. In 1992

H3 was privatised with 3400 employees to the German subsidiary of an American multinational company. In the same year two of the four factories acquired by the investor were sold on to the investor of company H2, thus transferring 900 employees between the two companies. Today H3 employs 800 employees in two factories. I visited company H3 on 17.04.97 and conducted interviews with the general manager, the personnel manager, a trade union representative and the head of procurement. I also obtained press releases by the company, back issues of the employee's magazine and newspaper articles from the national press.

**Company H4** is a pharmaceuticals company with 2550 employees (1997) and net sales totalling 265 million DM in 1996. When the French investor acquired a 40% stake in H4 in 1991, company H4 had 4500 employees. The stake of the investor, who is also a pharmaceuticals company, was gradually increased to 51% in 1993, 76% in 1995 and 100% in June 1996. I visited the company on 15.05.97 and conducted interviews with the operation director of industrial resources, the trade union representative, the personnel manager and the head of purchasing. I also obtained relevant newspaper articles and a company profile.

**Company H5** is a large chemicals company specialising in polyolefin feedstock and products. The company is based on a vertical structure and produces ethylene, propylene and polymers from naphtha. H5 has 20% of Central Europe's

petrochemical capacity[4]. It is one of the two remaining Hungarian chemicals companies of this size and importance and generated net sales worth 569 million DM in 1996. Company H11 is a major input supplier of H5, who purchases refined petroleum products, in particular naphtha and gasoil, from H11. There were several potential foreign investors who wanted to acquire a controlling stake in the company, but H5 resisted being privatised to any of them on the grounds that the prospective investors did not have long-run plans with H5 which were in the interest of H5 as perceived by its management and workforce. The company made a conscious decision to resort to institutional investors instead and floated in 1996, becoming one of the most liquid stocks on the Budapest stock exchange. The company is also listed on the London stock exchange. In 1997, 51% of shares were held by foreign institutions, 23.4% by domestic institutional investors and 8.2% of shares were held by the company's employees.[5] In 1990 the company had 5000 employees. Today H5 itself has 3500 employees. About 1600 employees were transferred to 32 affiliated companies which have been separated out from H5 as part of its restructuring plan or which are joint venture greenfield developments with a foreign investor.

I also visited companies H5b & c. Since in these companies it was not possible to obtain complete data sets, they have been omitted from the statistical parts of this study. H5b is a joint venture on-site greenfield development between H5 and an American investor (the shareholdings are 40% and 60% respectively). Using inputs from H5, H5b produces carbon, which is needed, for example, for the production of

[4] source: H5's company report for 1996

tyres. Since its foundation in 1992, H5b has been profitable throughout and has increased its employee numbers from 60 in 1992 to 88 in 1997. In 1996 its net sales totalled 53 million DM. H5c used to be fully integrated with company H5. Using plastic fibres produced by H5, H5c specialises in the production of polypropylene and polyethylene sacks. In 1991 H5c was separated out from H5 and a 50% stake was sold to an Austrian investor. H5c's employee numbers have risen from 150 in 1994 to about 500 in 1997.[6] Net sales in 1996 amounted to 16 million DM.

I visited H5, b and c on 05 and 06.06. 97. All three companies are located on one site in northern Hungary. I interviewed the managing directors of companies H5b and H5c respectively, the deputy CEO of H5, the personnel manager of company H5, a representative of the trade union to which employees in all three companies belong and the personnel manager of company H5. Furthermore I obtained back issues of the employee's magazine of H5, a company brochure for H5c, relevant newspaper articles from the national press, stock exchange reports of H5 for 1996 and 1997, the annual report of H5 for 1996 and the script for a PR presentation introducing H5 to prospective business partners. I was also given a guided tour of the main production facilities and of the extensive on-site recreational facilities for employees.

**Company H6** used to be one of the best-known manufacturing companies in Hungary. The company is still state owned although there are ongoing negotiations with potential investors. The only investor so far is a Russian consortium which has a

[5] source: H5's stock market report for 1996. The remainder is held by H5's local government.

30% stake in the company. It has been claimed towards me by the TUR that this is however a sleeping investor, who is represented through the Hungarian state property agency, ÁPV Rt. Articles in the Hungarian equivalent of The Economist, HVG, document, however, in great detail the rather stormy past this "sleeping" investor has had with the state property agency.[7] H6's main products are buses of all categories, vehicle parts and vehicle manufacturing equipment. At the height of its output throughout the 1980s, the company produced in excess of 12000 buses a year. In 1989 an accelerated decline set in and production in H6 fell to about 500 buses in 1996. The net value of sales in 1997 was about 203 million DM, generated by the sale of about 1750 buses. Employee numbers reflect this overall decline: they fell from 10.500 to 3.200 overall and in the factory visited from 3500 to 850. Considering that in its main markets demand for the product of this company has not collapsed as much as would be the case for some other manufacturing products, this rapid decline is as much intriguing to the researcher as it seems to be baffling and de-motivating to highly trained workforce. In 1996 the company got a new managing director and there are hopes to stabilise the output of the company in the medium term at 3500 buses and increase output in 1998 to 2500 buses, hopefully generating targeted net sales worth 354 million DM that year.

I visited company H6 on 13., 14. and 20.05.97 and conducted interviews with the head of logistics, a trade union representative, the head of corporate strategy and the personnel manager. I also had a discussion with some junior engineers and met an

[6] source: script of a presentation held in May 1997 by the manager in charge of investor relations

intern from America, Todd Calamita, who gave me a working paper written by him on the situation and strategic options of the company. I also obtained a company profile and the script for a PR presentation introducing H6 to prospective business partners.

**Company H7** is another well-known Hungarian manufacturing company. Its products are lamps, lamp equipment and components. In 1989/90 H7 was acquired by an American investor. At the time H7 had 14.297 employees. The number of employees has been reduced to 9.952 by 1997. Production increased between 1989 and 1995 by over 50% with net sales totalling 442 million DM in 1995 and 600 million US $ in 1996. The privatisation of H7 is now widely viewed as very successful, also because the investor has not only maintained the R&D activities of H7 but even transferred large R&D capacities to H7 from Europe and the USA. I visited H7 on 03.06.97 and 07.08.97. I conducted interviews with the Director of Manufacturing of the European division of H7's investor, the manager in charge of compensation and benefits, the trade union representative, the manager heading services sourcing, the head of R&D and the communication manager. I also obtained a company profile, a publication on the history of the company, back issues of the employees' magazine, ongoing leaflets to the employees outlining and arguing for the company's most recent advancements in quality management, the 1996 annual report of the investor and articles from the national press.

[7] see, for example, HVG 1995 June 10, HVG 1995, November 25, HVG 1996 October 12

**Company H8** is active in the printed matter and packaging industry. Its main products are folding cartons, flexible-wall packaging materials, labels as well as books and news-papers. H8 is an input supplier to H7. In 1996 the company had net sales worth 97 million DM. It was acquired in 1990 with 1000 employees by a French institutional investor. By 1997 employee numbers have been reduced to 580. I visited H8 on 06.08.97 and conducted an interview with the technical director of the company, the personnel manager and a trade union representative. I was also given several promotional publications on both H8 and its investor and was shown some of the products made by H8.

**Company H9** is also in the packaging industry, specialising in the production of paper boards and folding cartons. In 1996, the company had net sales worth 10 million DM. The company was acquired in 1993 by an American investor. Between 1990 and 1997 employee numbers fell from 450 to 100. I visited the company on 13. and 29.08.97. The managing director of the company preferred to take the questionnaires home hand fill them in his own time. Consequently I could only have an unstructured discussion with him at our first meeting and I have to rely on the answers he gave me on the questionnaire. I was unable to see the trade union representative, who could not make any proposed meeting times. I also obtained a fact sheet about the company.

**Company H10** belongs to the construction industry. Its activities include road and railway building, the production of asphalt and the building of water and gas

pipelines. In 1996 it generated net sales of 23 million DM employing 250 people. In 1991 H10 was privatised to an Austrian investor with 650 employees. I visited H10 on 14. and 15.08.97. I interviewed the managing director of the company and the chief accountant. Since the employees showed no interest in their trade union, the local trade union structure has withered away and there was no trade union representative to be interviewed. I obtained two different PR booklets introducing the company to potential business partners and the investor's annual report for 1995/6.

**Company H11** is one of the largest Hungarian companies. Its field of activity is the exploration and production as well as the refining and marketing of gas and oil. H11 also has a telecommunications division, whose main asset is a switched network of over 6.000 km laid alongside the company's pipelines. H11 produces petrol, runs a network of petrol stations, produces heating oils, lubricants, kerosene, propane, butane and is involved in gas and oil production and transportation but not in distribution. Company H5 is one of the three most important wholesale customers of H11. In some areas of its activities the company still has an effective state monopoly. The company was floated in 1991 on the Budapest stock exchange, where, due to the profitability of H11, it has proven to be one of the most popular shares. In 1996 the net value of sales reached 4.159 million DM and had 14.500 employees. In 1990 the company had 40.000 employees. As part of a pre-flotation restructuring 33 companies with overall 17.000 employees were separated out of H11. H11 was floated with 22.000 employees in 1991, so that the overall direct reduction of employee numbers between 1990 and 1997 is no more than 8500.

I visited H11 on 25.05.97. I conducted interviews with the deputy finance manager, the deputy marketing manager, a trade union representative and the personnel manager. I also obtained the report for the shareholders' meeting of 28.05.97, back issues from the employees' magazine from several years, the company report for 1996/7, an investors' news leaflet from February 1997 and a document outlining the company's business development since 1993 and its business plans up to 1999.

In addition to the research done in companies D1-9 and H1-11 I also conducted interviews with the following people, whom I thank for their participation and help:

**1.** On 22.09.96 I conducted a two-hour interview with Mr Harald Braun, Bezirkssekretär at the IG Bauen-Agrar-Umwelt, Landesverband Berlin-Brandenburg. Mr Braun has been active in the trade union movement in Brandenburg for many years before reunification even though he was not a member of the SED. From 1981 to 1987 he was Betriebsgewerkschaftsleiter (the head of the trade union in that company) in a medium sized company. He is one of the very few remaining trade union officials who have stayed in their positions after 1990. Mr Braun has been known to be very critical of the political regime of the GDR, a stance which caused personal problems for him in the past, such as being denied a university education.

**2.** On 11.04.96 I conducted a three-hour interview with Professor Hilmar Schmidt from the Bundesanstalt für Vereinigungsbedingte Sonderaufgaben (BVS). Professor

Schmidt has been previously working for the Treuhandanstalt in a high-ranking position.

**3.** In Hungary I interviewed the President and Managing Director of Douwe Egberts Hungary, a subsidiary of the American company Sara Lee. He declined an interview based on my questionnaire, but kindly gave me a two hour unstructured interview on 03.06.97. Sara Lee took over the former state monopolist in food packaging, Compac, and also developed some greenfield sites. The company belongs to the food industry and specialises in coffee (40% market share), tea (65%), spices (50%), groceries, sweeteners and salt. The turnover of Douwe Egberts Hungary was about 22 billion HUF in 1996. The interview provided an insight into a Western manager's point of view concerning the attitudes and qualification of the Hungarian workforce, the professionalism of Hungarian trade unions, the conditions with the ÁPV Rt., the role of local government, the reliability and attitude of Hungarian business partners and the image of Western investors with the general public. Since my interview partner gets interviewed by the Hungarian media, including television, quite frequently, his opinions seem to be regarded by the Hungarian media as fairly representative.

**4.** I also conducted a two hour interview with a senior Hungarian diplomat who was involved, among other things, in post-1990 trade negotiations with Russia.

**5.** I am grateful for the discussions conducted with Hungarian academics working in related fields, especially Prof. Csaba Makó from the Hungarian Academy of Science,

Dr. Annamária Inzelt from the Budapest University of Economics and Dr. Gábor Papanek from the GKI Economic Research Unit.

## Appendix:
## List of companies

| | Sector | Main Products | FDI | Sales[8] | Employees 1996/7 (1990)[9] |
|---|---|---|---|---|---|
| D1 | construction | Housing | YES | 150 | 600, (2000) |
| D2 | construction | Housing | YES | 33 | 248, (330) |
| D3 | manufacturing | steel products | YES | 69,3 | 270, (2021) |
| D4 | manufacturing | Tyres | YES | 135 | 722, (9500) |
| D5 | manufacturing | Pharmaceuticals | YES | 256 | 1033, (2700) |
| D6 | construction | power stations | NO | 58 | 320, (6500) |
| D7 | construction | civil engineering | NO | 220 | 800, (6800) |
| D8 | manufacturing | gas turbines | YES | 120 | 500, (4500) |
| D9 | manufacturing | Gears | YES | 213 | 700, (3000) |
| H1 | manufacturing | food: refined oils | YES | 292 | 640, (2100) |
| H2 | manufacturing | food: instant drinks, sweets | YES | 133 | 1396, (2400) |
| H3 | manufacturing | food: cookies, chocolate | YES | 101 | 800, (2500) |
| H4 | manufacturing | Pharmaceuticals | YES | 265 | 2550 + 200 (4500) |
| H5 | manufacturing | chemicals: polyolefin feedstocks and products | NO | 569 | 3500 + 1600 (5000) |
| H6 | manufacturing | buses, vehicle parts | NO | 354 | 3200 + 4300 (10.500) |
| H7 | manufacturing | lamps, lamp equipment | YES | 442 | 9.952 + 2000 (14.297) |
| H8 | manufacturing | packaging materials | NO | 9.7 | 580 + 400 (1000) |
| H9 | manufacturing | packaging materials | YES | 10 | 100, (450) |
| H10 | construction | civil engineering | YES | 23 | 250, (650) |
| H11 | manufacturing | petroleum and gas products | NO | 4159 | 14.500 + 17.000 (40.000) |

[8] 1995 figures for the German companies and 1996 figures for the Hungarian ones, all in million DM

[9] 2550 + 200 means, for example, that in 1997 the company in question employs 2550 people, while 200 of its former workers are now employed by fully operative separated out units (, that is newly founded companies under independent management, but not necessarily without ownership ties to the parent company).

# Chapter 1

# Restructuring the boundaries of the firm: Changes in vertical integration


## Abstract

*This chapter examines the way in which previously highly integrated enterprises have restructured their vertical boundaries, both with respect to the internal production of inputs and their functional integration. Empirical hypotheses derived from the literature on enterprise restructuring and on transaction costs are examined both qualitatively and statistically. In particular I ask whether, as suggested by the literature on enterprise restructuring, vertical disintegration leads to transaction cost savings and efficiency gains. I find a startling difference: in East Germany restructuring measures resulting in less vertical integration are associated with higher profitability while in the Hungarian data the opposite holds. It is argued that in the Hungarian context the lack of a well established background industry and the relatively high degree of economic, political and legal uncertainty strongly favour vertical integration. These environmental factors even dominate hypotheses based on opportunism and asset specificity, which are generally supported by my data . Foreign direct investors tend to fail to appreciate country specific factors and as a consequence tend to endorse restructuring measures which are performance enhancing in the East German context but not in the Hungarian one.*

## Introduction

Most formerly state owned companies in the transition economies of Central and Eastern Europe have inherited a highly integrated vertical structure. Using a transaction cost framework this chapter examines two questions which can be derived from the literature on enterprise restructuring, namely

- whether a reduction in vertical integration unambiguously leads to transaction cost savings and efficiency improvements[1]
- and whether companies with foreign direct investors are 'better' able to implement the required vertical disintegration[2] and to restructure the their supply arrangements[3].

This chapter examines the validity of these contentions. Explicit reference is made to the restructuring of both physical and functional vertical inputs. When a company reduces its vertical integration by stopping the production of physical inputs, then I will refer to this as the company experiencing the closure of vertical product lines and hence reducing the *physical vertical integration* of its product range. I interpret "functions" as ancillary services or activities which are an input into the productive process and can be potentially separated out in the process of reducing the company's *functional vertical integration.*

[1] See, for example, Carlin (1994, p.285), Aghion, P, Blanchard, O & Carlin, W (1994, p.2), Dobrinsky, R (1996, p.402), Meyer & Moller (1998, p.412), Ericson (1998, p.108).
[2] See, for example, the implications of Aghion, Blanchard & Burgess (1994).
[3] See, for example, the implications of the literature on 'deep restructuring': Carlin, Van Reenen & Wolfe (1995).

The chapter proceeds as follows: Section 1 provides a survey of the literature. Section 2 derives empirical hypotheses. Section 3 presents the empirical evidence found in my case studies and derives statistical variables. Section 4 confronts the hypotheses. Section 5 concludes by interpreting the statistical evidence found.

## 1. Literature survey: Advocating a reduction in vertical integration[4]

### The situation before 1990

Before 1990 East German and Hungarian companies operated in an economy characterised by bottlenecks. Consequently companies developed a desire for 'reproductive self-containment' (Grabher 1996) which led them to produce as many inputs internally as possible. In addition planners in both countries tended to have a preference for monopolising industrial sectors as it was deemed that larger but fewer enterprises would be easier to control than many small ones (Kornai 1992). The creation of autarchic mass producers was also hoped to achieve greater efficiency by making wide-spread use of the principles of concentration and specialisation (Grabher 1996).

These two forces frequently resulted in the creation of highly vertically integrated local monopolies whose boundaries had been determined by non-market based considerations. One result was that in any given sector individual firm size tended to be a lot larger in Central and Eastern Europe. To illustrate this point Kornai (1992,

[4] This literature survey will serve as the basis for the derivation of the empirical hypotheses in Section 2 and in Section 5 it will constitute the framework for interpreting the evidence found. Consequently this survey is more detailed than would be required if the sole objective was to give a simple overview.

Table 17.4) suggests that in 1988 in the chemical industry, for example, the mean number employees was 1419 in an East German company and 296 in a West German one. In addition Amsden et al (1994, Table 4.3) point out that not only were individual companies larger and more integrated, but that the size distribution of companies on an economy-wide level was skewed in favour of very large ones. For example in the late 1980s 90.8% and 75.3% of the East German and Hungarian workforce respectively were employed in companies counting more than 1000 employees. In contrast only 31.2% of the Austrian and 49.8% of West German employees worked in such companies.

Advocating a reduction in integration on efficiency grounds

The unbundling of these 'excessively' integrated enterprises [Estrin (1994, p.15)] and the demonopolisation of the industrial sectors they operate in are generally regarded as central to improving efficiency in the enterprise sector of transition economies. Privatisation is frequently seen as a prime way of achieving the former objective and trade liberalisation as a crucial contributor to the latter [see, for example: Gros & Steinherr (1995, p.285)]. The contention that on the enterprise level a reduction in vertical integration is needed to increase productive efficiency and a reduction in horizontal integration is a pre-requisite for greater allocative efficiency is so widespread that it is rarely discussed in depth in the enterprise restructuring literature. Authors also do not tend to differentiate between functional and physical vertical integration. Carlin (1994, p. 40), for example, states with reference to East Germany that "The motivation for breaking up the Kombinates and for splitting up enterprises

was to increase efficiency. Allocative efficiency requirements to reduce horizontal integration have played a relatively limited role in East Germany in the light of the strength of competition in the product market coming from West German suppliers...The need to improve private productive efficiency has dominated the splitting up process." The general tendency is to simply include a call for a reduction in vertical integration in a general list of urgent restructuring measures required as part of the process of 'the closure of non-viable units' and the 'separation of core from non-core activities' [See, for example: Aghion, P, Blanchard, O & Carlin, W (1994, p.2), Dobrinsky, R (1996, p.402), Meyer & Moller (1998, p.412), Ericson (1998, p.108)].

It is sometimes implied that companies with FDI will be able to better restructure their vertical structure because investors can break the power of insiders who might form coalitions to oppose such restructuring measures [see, for example, the implications of the Aghion, Blanchard & Burgess (1994) model]. An alternative possible reason for companies with FDI being better able to restructure their supply arrangements is that investors might facilitate a reduction in vertical integration by giving their subsidiaries access to international supplier networks as well as to marketing, R&D and other facilities at the head offices.

A strand of literature which cautions against endorsing reduced vertical integration simply because firms are more integrated than their Western counterparts can be found with authors of a more evolutionary and network based focus. Grabher & Stark

(1996), for example, provide evolutionary arguments in favour of organisation diversity and against adopting winning models from the west. On this account some redundancy and slack and hence a reduction point optimality might be required to preserve adaptability and dynamic efficiency. They view the persistence of organisational forms and social relationships from the old system not so much as a signal for incomplete change as an option for the future.

The question of holding companies and imperfect vertical disintegration

It is generally not discussed whether companies should preferably reduce their vertical integration by selling off their input producing facilities or by closing them. The creation of structures in which the parent company maintains an ownership stake in its (separated out) supplier tends to be classified as 'ambiguous restructuring' [Carlin, Van Reenen & Wolfe (1995, p.442 ff.), Grosfeld & Roland (1995, p.9)]. Ambiguous restructuring is generally defined as restructuring measures which are not clearly motivated by market based and efficiency considerations. The alternative is that they aimed at 'building up different protections from pressures to change'[Grosfeld & Roland (1995, p.9)]. Grosfeld & Roland (1995, p.9) state that in their judgement "another form of rent-seeking behaviour is the creation of cross-ownership or of holding companies retaining stakes in their subsidiaries in order to shelter insiders from outsider control and securing monopoly power for the firm." Carlin, Van Reenen & Wolfe (1995, p.442 ff.) are more differentiated in their assessment of the motivation for creating holding companies which retain ownership stakes in separated out suppliers and suggest (p.444) that, although it is unclear whether this practice will

actually hinder or help the subsequent sale of these suppliers to outsiders, "stakes for suppliers... may enable the enterprise to guarantee secure suppliers in an uncertain market."

The network literature elaborates on the risk hedging implications of the creation of holding companies with ownership stakes in separated-out suppliers. Stark (1996) argues that such practices create networks which can reduce risk and offer hedging strategies under conditions of extreme market volatility and in some instances might even lead to supply arrangements which are conducive towards innovation. This statement leads us directly to an argument why the separating out (whether by sale or by the creation of a holding company) rather than liquidation of non-core activities might be preferable in a transition context: In a situation where the principle of 'reproductive self-containment' lead to underdeveloped networks of external suppliers companies which separate out units are actually creating their own background industry. This is such a central observation that it is worth elaborating with a quote from Auerbach (1993, p.145) made when discussing the general relationship between planning and the market: "Firms have been at the same time devices for the avoidance of the market mechanism as well as for its extension. The option of avoiding internal organisation by the use of the market is only possible if *other* entities, such as firms, have been organised in sufficient depth for a 'market' to appear for the service at hand..... a presupposition of the existence of markets and the failure to see the role of firms in the *making* of markets informs Coase's analysis..." I would like to add that this presupposition seems to also inform some of the literature

on enterprise restructuring and, as we will see from my Hungarian case studies, the policies of many investors.

Can one assume that all the determinants of 'optimal' vertical integration are moving in the same direction in *all* transition economies?

Another presupposition which needs to be made explicit underlies the general claim that a reduction in vertical integration should increase productive efficiency in *all* transition economies.[5] Underlying such a notion is the implicit assumption that all the theoretical and empirical determinants of vertical integration are moving in the same direction in all transition economies. This is not trivial. Should I find contrary to what the literature leads us to expect that the efficiency implications of differing degrees of vertical integration do indeed differ across countries, then these basic determinants of the 'optimal' degree of vertical integration will have to be referred back to.

On the basis of the transactions cost literature one should only expect companies in different economies to exhibit the same degree of vertical integration if in each case this particular degree of vertical integration happens to be the transaction cost minimising corporate configuration. This is a direct result of what Williamson (1998) calls the discriminating-alignment hypothesis underlying the predictions of transaction cost economics, namely that (p.76) "transactions, which differ in their

[5] Since none of the authors surveyed distinguish between different countries in this respect it is reasonable to infer that they intend their conclusions to hold for transition economies in general.

attributes, are aligned with governance structures, which differ in their cost competence, so as to effect a (mainly) transaction cost economising result."[6]

The major premise of transaction cost theory is that the properties of transactions determine the contracting hazards involved and the response of agents to these hazards in turn determines the governance structure for that transaction. The magnitude of contracting hazards depends on the attributes of the assets and on the characteristics of the contracting relation [Williamson (1985, p.84)]. Factors producing contractual hazards and hence transaction costs are considered to be the crucial behavioural assumptions of bounded rationality and opportunism as well as situations characterised by small number bargaining and asymmetric information. Transaction costs are traditionally assumed to increase with the asset specificity and uncertainty involved in a transaction as well as its infrequency [(Reve (1990), Masten (1996), Williamson (1996, p.59)].

Bounded rationality relates to the impossibility of writing complete contracts which cover all possible future contingencies. Such incompleteness gives rise to residual rights of control, that is a situation where it is no longer the case that any rights conferred by ownership can be contracted away [Hart (1993)].[7] Kreps (1986) extends

[6] In Williamson (1996, p.95) the same idea is referred to as 'discriminating match'.

[7] Bernheim & Whinston (1998) argue that bounded rationality and transaction costs are not sufficient to explain why contracts sometimes make actions less sensitive the verifiable events than would appear optimal or even fail to specify verifiable obligations of the parties. They suggest that once some aspects are unverifiable, then it is often optimal to leave other verifiable aspects of performance unspecified. Such purposeful incompleteness can help contracting parties sustain co-operation by allowing them to create more severe history-dependent punishments and they argue that many best-response functions

the notion of residual rights of control by stating that party A to a transaction will only be willing to give to party B such residual rights if party B has a reputation for sticking to an implicit contract concerning the adjudication processes that meet unforeseen contingencies. Such a 'culture' characterising the implicit rules of the game and the private norms and sanctions applicable becomes all the more important the more complex and uncertain a transaction is, that is the more incomplete explicit contracting is.

Informational asymmetries can be expected to confound the problems caused by bounded rationality and to increase the costs associated with writing, monitoring and enforcing contracts [Joskow (1993, p.125)]. Similar costs are associated with opportunism. Opportunism is generally aimed at obtaining a higher share of the benefits of trade for oneself than the other party has agreed to a priori. Masten (1996, p.7) distinguishes between two types of opportunism: Firstly actions aimed at a redistribution of the gains from trade within the terms of an existing agreement (a moral hazard problem) and secondly actions aimed at forcing renegotiation (the hold up problem). He claims that opportunism is costly not only because efforts to constrain opportunism directly consume resources and place additional demands on bounded rationality, but also because it can cause a failure to reach agreement and to realise potential gains from trade.

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may be achievable only through the use of an incomplete contract that leaves the alter-moving player with discretion.

A lot of attention has focused on how asset specificity increases transaction costs. Asset specificity or a lock-in effect is generally assumed to be caused by relationship-specific investment undertaken by one party to a transaction. For this party a 'fundamental transformation' [Williamson (1993, p.97)] occurs as a consequence of which a situation of ex ante competition turns to one of small number bargaining ex post, thus greatly increasing the scope for opportunism by the other party. Williamson (1985, p.95) distinguishes between four types of asset specificity: physical, site or location and human asset specificity as well as the presence of dedicated assets. He argues for a common ownership of core activities for which asset specificity is high (1985, p.98).[8] Both uncertainty and infrequency increase transaction costs by increasing the informational requirements on and the demands on the bounded rationality of contracting parties. A particular problem with infrequent transactions is that agents cannot acquire reputations, which would have tempered their propensity to behave opportunistically [Masten (1996, p.150)].

Contracting hazards do not, however, only occur due to the characteristics of a given transaction and of the contracting agents, but also due to the characteristics of the wider economic, political and social system within which a transaction is located. In his later writings Williamson (1998) increasingly takes account of this

[8] Similarly Hart (1989, p.209) argues that with extreme complementarity between assets- that is if no transacting party can benefits from any increase in his marginal productivity unless he has access to both sets of assets- assets should be owned in common, which may provide a minimum size of the firm. From a rather different starting point and without making clear how codification costs relate to transaction costs Casson & Wadeson (1998) suggest that the boundaries of the firm should lie where information is most easily codified and where communication can therefore take a relatively impersonal form.

'embeddedness' of transactions, claiming that additional contracting hazards might arise from systemic features such as weak property rights and a general weakness in the institutional environment. Similarly Coase (1998, p.73) states that "the costs of exchange depend on the institutions of a country: its legal system, its political system,...., its culture and so on." If two economies systematically differ along these dimensions, then one would expect their organisational structures to reflect these differences, even if in both instances a given transaction is characterised by the same degree of, for example, asset specificity and infrequency.

When contracting hazards are severe then vertical integration provides an alternative way of organising a given transaction. Grossman & Hart (1986) interpret vertical integration as the unified ownership of the physical assets involved in successive stages of production. They interpret ownership over an asset to entail the purchase of all the residual rights of control over that asset. On this account in an externality-free world the person whose actions determine the profitability of an asset would also own it [Hart (1993, p. 114)].[9] Grossman & Hart's (1986) approach to vertical integration differs from that of Williamson and Coase. Instead of emphasising changes in the ownership of physical assets Williamson and Coase tend to mainly associate vertical integration with changes in incentives and control mechanisms caused by the substitution of an ordinary contractual relationship with a relationship of hierarchically organised authority. Such an interpretation of the main features of

[9] Dow (1993) claims that it is sufficient for essential input suppliers, who have large sunk costs before production and are indispensable in the production process, to be able to appropriate large ex-post

integration leads to definitions which defined integration in terms of the *organisation* (rather than ownership) of two successive processes by a single firm [Riordan (1990)].[10]

The potential benefits of integration can be directly derived from a consideration of the contractual hazards it tries to mitigate.[11] Asset specificity and the increased danger of opportunism it entails are frequently seen as and found to be the single most important motivating factor favouring vertical integration [Williamson (1985, p.86), Lieberman (1991)]. Integration can avoid hold-up problems by eliminating the second transactor [Grossman & Hart (1986), Masten (1996)]. Alternatively it could be argued [Williamson (1985)] that a reduced probability of opportunism in an integrated supplier is due to feelings of loyalty which might result from integration. The aim of avoiding opportunism becomes all the more important the higher the fraction of total costs accounted for by a given input [Lieberman (1991)]. Klein (1988) argues that the reduced likelihood of opportunistic hold-up is the principal transaction cost saved by vertical integration.

Whyte (1994) suggest that an alternative reason why high asset specificity is associated with integration is the 'sunk cost effect' according to which people take

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quasi-rent streams. Rajan & Zingales (1998) suggest that giving them access to critical resources is an alternative to giving ownership to motivate agents to make relationship specific investments.

[10] These two types of definitions are not mutually exclusive. For the purposes of this chapter I will define vertical integration in organisational terms, including the degree of control exercised over the subsidiary's operations. In the context of examining the organisational and efficiency issues arising in the subsidiaries of foreign direct investors and in Hungarian holding companies this is far more fruitful than sticking to ownership relations as such.

into account the sunk costs they have incurred when deciding how much use to make of, e.g. a facility. A consequence of this effect is a tendency to escalate commitment (by, for example, integrating) to a previously chosen course of action to a greater degree than is justified by the objective facts of the situation. On this account there is no reason why one should expect greater vertical integration motivated by such sunk cost consideration to be positively associated with profitability.

An improved information flow to the integrating customer can help mitigate the informational problems inherent to bounded rationality, asymmetric information and the infrequency of transactions. It is argued that employees have a greater duty to disclose information to employers than suppliers have to customers [Masten (1996), Riordan (1990)]. Williamson (1985, p.154) also argues that by integrating companies gain better information through an increased ability to control their subsidiary's accounting procedures.

The decision to vertically integrate not only affects the information available to a company but also the risks it faces: Hanson (1995) argues that the choice of ownership involves a trade-off between minimising hold-up risk and spreading natural risk. Ownership under one party increases exposure to environmental uncertainty while reducing hold-up risk. He arrives at the empirical prediction that a manufacturer will subcontract a high share of production where demand is highly variable and a low share where they make large relationship-specific investments. The

[11] It should be noted that the decision to remain vertically integrated, which is what I am are dealing

possible risk hedging properties of vertical integration are supported by Lieberman (1991) who found in a study of 34 companies that firms appear to have integrated backward to avoid variability in the input market that was independent of fluctuations in their downstream market.

Although this is disputed by Alchian & Demsetz (1972) it is also argued that vertical integration gives a customer greater flexibility and adaptability to changing circumstances, since he can now resolve disputes in the supply relationship by administrative fiat rather than having to appeal to courts [Masten (1996), Williamson (1996), Dow (1993)]. It is important to distinguish two types of flexibility, however. To the extent that private ordering does away with the need to determine a wide range of possible future contingencies in advance (since they can be dealt with internally when they arise) it is likely to be associated with transaction cost savings as well as greater flexibility in responding to unforeseen eventualities. Vertical integration, however, causes a company also have the reduced flexibility in *choosing* a new supplier. The greater the competitiveness of a company's background industry the more likely it is that a company's adaptability is better preserved by maintaining choice rather than integrating with any individual supplier.

Considering the competition in a company's background industry leads us to two further factors favouring integration which are not directly related to transaction costs. Firstly one can expect companies whose competitors have monopoly power to

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with in this chapter, is intellectually analogous to the decision to become more vertically integrated.

consider integrating with the aim of avoiding the negative externality effect which a double marginalisation has on their final demand [Waterson (1993)]. Secondly because they will be better able to realise economies of scale one can expect larger firms to be more integrated into components than will be smaller ones, ceteris paribus [Williamson, 1985, p.94)].

Vertical integration is not without costs, however, otherwise there would be no limit on firm size. The costs associated with integration are mainly incentive type costs, usually implying a reduced incentive for costs savings and productivity improvements in the subsidiary [Waterson (1993)] as well as increased monitoring and bureaucratic costs for the parent [Dow (1993), Williamson (1985, chapter 6)]. The main factor driving the result that managers in a subsidiary will have lower effort incentives ex ante is the fact that upon integration the principal obtains better information upon the upstream manager's ex post rent [Olsen (1996)]. Since a commitment to selective intervention by the principal is not credible, the agent, who is no longer the holder of the residual rights of control, becomes vulnerable to the pincipal's opportunism. The agent's reaction is to reduce his effort. Grossman & Hart (1986) analyse the resulting countervailing incentive effect: integration is only beneficial if firm1's (the purchaser's) control increase the productivity of its management more than the loss of control decreases the productivity of firm 2's management.[12] They conclude that non-integration is desirable if both firms' relationship specific investments are important

[12] In contrast to Grossman & Hart Chiu (1998) suggests that the loss of ownership of an asset may actually increase the assets loser's investment incentive. This result is based on a different interpretation of the role of the threat point and outside options in bargaining.

to the final outcome. Williamson (1985, p.279 ff.) and Kay (1993) suggest that m-form companies, where inter-function co-ordination is carried out by divisions, can at least partially mitigate the incentive and control-loss problems associated with vertical integration.

To conclude this discussion I can state that the wide-spread notion that a reduction in vertical integration is going to unambiguously have positive efficiency effects in the form of improved incentives and transaction cost savings in *all* transition economies presupposes that in all these countries

- contracting hazards and uncertainty arising from the characteristics of the wider economic, political and legal system are moving in the same direction
- pre-existing background industries are developed and competitive to a similar extent
- agents are characterised by similar levels of opportunism
- pre-existing internal supply arrangements are characterised by a similar degree of asset specificity and the effort exerted by suppliers of valuable inputs is equally important in both contexts.

## 2. The empirical hypotheses

The foremost question this chapter examines is whether a reduction in both physical and functional vertical integration unambiguously leads to transaction cost savings and increased cost efficiency in both East Germany and Hungary. Accordingly Hypothesis 1 formulates this question by suggesting that less integrated companies should have a higher likelihood of being profitable in both countries. Hypothesis 2 suggests that in this context reducing vertical integration by the creation of holding companies is likely to have ambiguous profitability implications. According to Hypothesis 3 foreign direct investors were better able to accomplish reductions in vertical integration. Hypothesis 4 combines Hypotheses 1 & 3 by concluding that companies with FDI should perform better than those without. The remaining hypotheses relate directly to the implications of the transaction costs literature. To the extent that I find on the basis of these secondary hypotheses that Hungarian and German companies systematically differ along the dimensions favouring vertical (dis)integration I will be better able to interpret the findings for Hypothesis 1.

### 2.1 Hypotheses relating to the profitability implications of vertical disintegration and to the role of foreign direct investors

HYPOTHESIS 1:

- *a negative association between profitability (as a proxy for cost efficiency and transaction cost savings) and vertical integration for both Hungarian and East German companies* [Carlin (1994, p.285), Aghion, P, Blanchard, O & Carlin, W (1994, p.2), Dobrinsky, R (1996, p.402), Meyer & Moller (1998, p.412), Ericson (1998, p.108)].

HYPOTHESIS 2:

- *an ambiguous association between profitability and the creation of holding companies by separating out ancillary units* [To the extent that such measures are aimed at insulating insiders against outside pressures, they will be negatively associated with profitability - Grosfeld & Roland (1995, p.9). On the other hand they might guarantee secure supply channels- Carlin, Van Reenen & Wolfe (1995, p.442 ff.).]

HYPOTHESIS 3:

- *a positive association between FDI and reductions in vertical integration* [ The Aghion, Blanchard & Burgess (1994) model can be interpreted in this way if an insufficient reduction in vertical integration is due to insider power. Alternatively investors might reduce their subsidiaries' integration because they can use alternative suppliers from pre-existing world-wide supply networks. This is implied by Grabher's (1996, p.181) discussion of "cathedrals in the desert" being created by investors with globally focused supply strategies.]

HYPOTHESIS 4:

- *a positive association between FDI and profitability* [This is a logical conclusion from Hypotheses 1&3. No causation is implied.]

## 2.2 Secondary hypotheses relating to the implications of the transaction costs literature

HYPOTHESIS 5:

- *positive association between opportunistic suppliers and vertical integration* [Masten (1996, p.7), implication of Grossman & Hart (1986), Klein (1988, p.166)]

HYPOTHESIS 6:

- *positive association between reductions in vertical integration and companies procuring mainly standardised products (that is products involving a low asset specificity)*[Winger (1994, p.10), implication of Williamson (1985, p.86, p.94), Lieberman (1991)]

HYPOTHESIS 7:

- *positive association between company size (proxied by the number of employees) and vertical integration:* [Larger companies are more likely to remain vertically integrated into components because they will be able to make better use of scale economies than smaller companies- Williamson (1985, p.94).[13]]

[13] A counterargument is that smaller companies might still be able to realise sufficient scale economies by selling internally produced components to external agents.

## 2.3 Explanatory hypotheses which are not going to be confronted statistically

HYPOTHESIS 8:

- *companies operating in an environment characterised by greater economic, legal and political uncertainty are likely to remain more integrated* [Coase (1998, p.73), Williamson (1998)]

HYPOTHESIS 9:

- *companies with a less developed background industry are more likely to remain integrated* [The motivation for this is that they are more likely to face a double marginalisation problem if they turn to external suppliers.]

## 3. Variables and case study evidence[14]

The aim of this section is to present the case study evidence on which the statistical variables capturing changes in the companies' physical and functional vertical integration are based. Case study evidence is presented concerning the relative advantages of different degrees of integration.

### 3.1 Variables capturing and examining changes in the companies' physical and functional vertical integration[15]

- *Variables capturing changes in the companies' physical integration*

In each company I obtained information in the number of vertical product lines which were closed and newly introduced, making it possible to capture the overall net change in the companies' physical integration. The means reported in Tables 4a & b suggest that in my data set 33% of the East German companies closed an important input producing facility and none introduced new vertical products. In Hungary on the other hand only one company closed down a vertical product line and 25% of companies actually started producing new inputs internally. The net effect is a mean decline of 0.33 vertical product lines in East Germany and a small mean increase in the Hungarian companies' physical vertical integration. These differences are statistically significant. The notion that in both countries companies are adjusting

[14] The case study evidence not only serves as a basis for the statistical variables used in Section 4, but will also help to interpret the statistical results obtained.

[15] Tables 1&2 summarise the changes in the companies' functional integration. Table 3 describes the variables which were used to examine the changes in the companies' integration. Tables 4a &b

their (physical) vertical integration in the same direction can be clearly rejected at this stage already: The claims that the mean East German company is closing down more input producing facilities and introducing fewer new ones are both significant at the 10% level, while the observation that Hungarian companies have been experiencing much smaller declines in their integration is significant at the 1% level.[16]

- *Variables capturing changes in the companies' functional integration*

I asked each company which functional inputs were catered for internally, by other companies in the Kombinat and by entirely external suppliers in 1990 and, similarly, internally, by the investor and by external suppliers in 1996(7). For 1990 the functions considered were: 1. Bilanzierung, that is checking whether production in the company is running according to the plan given from the central authorities, 2. Investment planning, 3. Personnel, 4. Product development, 5. Process development, 6. Input procurement, 7. Maintenance, 8. Distribution and 9. Transportation. In reflection of the fact that the functional inputs required for production and administration have changed eleven categories were considered for 1996(7):1. Personnel, 2. Design, 3.

summarise the data. Tables 5a &b show the correlation matrices obtained. All tables can be found in the Appendix.

[16] At this point I am testing for homogeneity between Hungary and East Germany. Unless it is otherwise stated the null cannot be rejected for the variables used in my case studies. Testing the hypothesis of homogeneity for two country-specific dummies involves using the chi-square test of independence. In the case of continuos variables a t-test on their means was used. If the null hypothesis of homogeneity cannot be rejected, then the two country specific variables can be pooled. Correlation matrices were obtained for the pooled data but did generally not contradict previous findings or add something new.

Quality control, 4. R&D, 5. Procurement, 6. Maintenance, 7. Sales, 8. Transportation, 9. Marketing, 10. Customer services and 11. Computer facilities.[17]

I find that in 1990 the Hungarian companies in my data set made more use of suppliers which were entirely external to the company and the conglomerate it belonged to. One in six Hungarian companies used such external suppliers, while no German company reports such arrangements. This difference is an indicator of the overall greater (micro)economic decentralisation and liberalisation which existed in Hungary by the late 1980s as a result of the reform period in the 1980s. By 1997, however, the Hungarian companies tend to be more functionally integrated than their East German counterparts, with the Hungarian companies tending to cater internally for 8.18 functions out of a maximum of 11 and the average German company catering for only 7[18]. A major reason for why the Hungarian companies are more functionally integrated is that there are far more R&D (significant at the 10% level) and customer service departments (significant at the 1% level) in the Hungarian data set than in the German one. The overall trend has been, however, for functional vertical integration to decline in both countries, by a mean value of 17.2 percentage points in the Hungarian data set and of 22.5 in the East German one. The Hungarian companies tend to rely to a relatively greater extent on suppliers which have been separated out of the parent company, while East German companies make greater use of entirely external suppliers.[19]

[17] See Tables 1a,b & 2a,b for details.
[18] All these mean values can be found in Tables 4a & b.
[19] These differences are noticeable but not statistically significant.

I asked several interview partners in each company to explain the main advantages and disadvantages of having a more integrated structure. The arguments given by Hungarian and East German managers for and against integration are largely the same and reflect many of the theoretical considerations raised by the transaction cost literature. Hungarian and East German managers seem to have arrived at different conclusions concerning the 'optimal' degree of vertical integration from similar starting points. Companies name as the major **advantages of having an overall less integrated** structure:

- *Cost savings* due to the use of external subcontractors (D7, D1) who, for example, can pass on gains due to scale economies. On a similar note the production manager in H6 claimed that by separating out ancillary units capacity utilisation has increased, because outsiders are also using these facilities.
- *Flexibility:* an ability to react faster to changes in the competitive environment by having direct information about local demand conditions, having direct access to local networks and being able to reorganise the company's operations faster[20] (H5, H10, D1).
- A *reduction in the internal bureaucracy* of the company (D9, H3)[21].

[20] For example an interview partner in H10 claimed that less integrated structures increase flexibility and ease information flow problems: "We have a very small centre and most day-to-day decisions are made on the building site or in the factory where they arise. These local units are only accountable for their profitability but are not asked to justify each and every decision made. This increases our flexibility and makes us responsive to local demands. Furthermore, like this we are better able to tap into local networks, which is important in gaining jobs."

[21] "When we have to ask for permission from the head offices to do something, then this costs time and increases the administrative burden on us." (H3's managing director)

Perceived disadvantages of having a less integrated structure and **advantages of greater integration are**:

- *Autonomy has the advantage of the company not having to rely on a non-existent or highly unstable background industry* (H1, H6, H8, D5: Input procurement from the investor can serve to smooth production runs and capacity utilisation.)[22].
- Control loss by less integration is mitigated resulting in *greater flexibility and faster decision making in more integrated structures* (D8, D9, H3)[23]. Furthermore *quality control problems* with external suppliers can be mitigated by internal production.
- The *use of synergies* between different vertical stages enables the company to, for example, secure optimal delivery conditions and smoother operations (H11)[24]
- The company is better able keep high quality workers (H11, H6).

The case studies showed[25] that a major way of reducing the internal provision of functions in companies was to obtain them from their investor instead, effectively causing functional integration of the subsidiary with the investor. Entirely external or separated out suppliers tend to be predominantly used for transportation and maintenance, with the remaining reduction in functional integration being accounted

[22] "Vertical integration reduces our dependency on others. The infrastructure is not sufficiently developed to subcontract more functions out. The aim is to maintain this level of integration in the medium-run as well." (H1's managing director).
[23] The managing director of H3 cites of the main advantages of generally having internal departments, rather than using the investor that it gives the local company flexibility, local information and cost advantages. He adds that: "When we have to ask for permission from the head offices to do something, then this costs time and increases the administrative burden on us."
[24] In H11 both upstream (due to temperature changes) and downstream activities (due to tourism) are highly seasonal, but their seasonal fluctuations cancel each other.
[25] See Tables 2a &b.

for by investors. Companies cite as the **main advantages of being functionally more integrated with the investor:**

- *Integration of the local company with the investor's world-wide procurement activities leads to cost savings* (H4, H7, H9).[26]
- If the investor provides computing facilities, this can lead to *knowledge transfer* (H4).
- *Integration of the marketing functions can open up new trade channels to the Hungarian subsidiary* (H4).[27]
- Functional integration with the investors enables the subsidiary to make use of *synergies* (D4, D5, D8, D9).[28]

Companies cite as the **main disadvantages of being functionally more integrated with the investor:**

- *Some investors try to import practices and policies which are ill-adjusted to the subsidiaries' environment* (H2, H3, H7, D7).[29]

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[26] H3's managing director: "The advantages of the investor conducting part of our procurement is that we can save costs due to bargaining with larger orders. We can also save time by using the expertise of procurement managers in the Head Offices. However we expect this division of labour to stay constant in the medium-run, since it makes no sense for the head offices, which are far away in Cologne, to take on more functions (also H9)."

[27] H4 benefits from the investor's trade channels and experience in the West and the investor from H4's in the East. Similar synergies can be achieved in R&D, where both the investor and the subsidiary provide R&D services (H4, H7).

[28] This is especially the case with R&D activities.

[29] For example H2 is highly integrated with its investor and the production manager interviewed made the following comments: "(Our parent company) tries to have a coherent organisational methods on a world-wide level. This results in very hierarchical structures and in methods which in their uniformity do not always adjust well to local conditions. In particular, the Hungarian subsidiary suffers from information flow problems. This is particularly true for the investor's marketing department, which seems to be unable to get to grips with Hungarian idiosyncrasies because they are unable to take in information from the Hungarian subsidiary. The overall consequence is that H2 is very slow in reacting to market developments."

- *A reduction in the subsidiaries' flexibility* (H3, D8)[30]

3.3 'Explanatory' variables

- *Dummies to capture whether the company is profitable in 1995, 1996 or 1997* [Hypotheses 1, 2, 4]: Interview partners were simply asked whether their company was profitable or not. In 1995 44% of the companies in my East German data were profitable rising to 77% in 1997. In 1996 54% of the Hungarian companies were profitable and all expected to at least break even by 1999.

- *A variable to capture whether the company has separated out ancillary units or not* [Hypothesis 2]: Although 66% of the East German companies and 75% of Hungarian ones created new companies by splitting off previously integrated units, there are very important qualitative differences between the two countries. In Hungary this was a very common practice affecting a large number of employees in service as well as production units. In East Germany separated out units only tended to be small and with hindsight not viable companies with typically under 50 employees who provide maintenance, transportation, cleaning and guarding services. In contrast to Hungary it was entirely uncommon for East German companies to maintain an ownership stake in these small new companies.

[30] For example the change manager in D8 complains that if D8 wants to introduce changes, the interests and position of other companies within the investor's conglomerate (some of its suppliers belong to the same investor) have to be taken into consideration.

- *A dummy to capture whether the company has a foreign direct investor or not*[31] *and one relating to the influence on the restructuring of the product range that the foreign direct investor has had* [Hypotheses 3 & 4]:

In the East German data 77% of companies had foreign, including West German, investors in 1996. The two companies which at this time did not fall into this category were both up for re-sale after failed privatisations. The privatisation of D6 failed because the investor ended up asset stripping until the company's board intervened and initiated a re-purchase by the Treuhand. When I called in 1998, D6 had been re-privatised to a UK company. The case of D7 is very unusual in that this is a company which is very successful in spite of its investor who went bankrupt. D7 was the only company in a large conglomerate which did not go down with its Austrian investor.

In Hungary the picture is more varied. 63% of the companies visited have a foreign direct investor, H5 and H11 have floated on the Budapest stock exchange after prolonged government involvement (some would say interference), H6 has been going from one crisis and government intervention to the next and H8 has an institutional investor who does not interfere in the day-to-day running of the company. Only in four of the East German and five Hungarian companies did the investor have a determining influence on the restructuring of the product range.

[31] By 1997 all the companies with FDI are fully owned subsidiaries, that is we are dealing with

- *A variable to capture the extent to which a company is facing opportunistic suppliers* [Hypothesis 5]:[32] Hungarian interview partners tended to view their suppliers as slightly more opportunistic, but this was not a statistically significant difference.

- *A variable capturing the extent to which a company's inputs are standardised* and hence characterised by a low asset specificity [Hypothesis 6]: The case studies suggest that for East German companies 65% of their inputs tend to be standardised, while the mean value for Hungary is 85%. This difference is significant at the at the 10% level. Consequently on the basis of Hypothesis 6 one should expect the Hungarian companies to have a tendency to be *less* integrated into input production than their East German counterparts.

- *Variables capturing the size, that is number of employees, of a company in 1990 and 1996/7* [Hypothesis 7]: In the East German companies the mean number of employees fell from 4150 to 577, while in Hungary there was a much smaller decline from 4430 to 2270.

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acquisitions rather than joint ventures.

[32] This variable was obtained from interviews with the procurement manager in each company.

## 4. Confronting the hypotheses

This section presents the statistical evidence obtained with respect to Hypotheses 1-7. Tables 5a and 5b in the Appendix summarise the associations found for the variables introduced.

### 4.1 Hypotheses relating to the profitability implications of vertical disintegration and to the role of foreign direct investors

HYPOTHESIS 1:

- *a negative association between profitability (as a proxy for cost efficiency and transaction cost savings) and vertical integration*

*Summary: This hypothesis is supported by the East German data both with respect to functional and physical vertical integration. In the Hungarian data, however, higher functional and physical integration are both associated with a higher probability of being profitable, not a lower one as Hypothesis 1 suggests.*

The East German data there is clear evidence that companies which procure a larger share of their functional inputs from outside agents in 1996 have a higher than average probability of being profitable [0.64, 5%][33]. In addition I observe positive but overall insignificant associations between net reductions in physical and functional vertical integration and profitability.

[33] The numbers in parentheses indicate the association found and its statistical significance. Statements along the lines of 'companies with a higher than average functional integration have a higher than average probability of being profitable' are meant to indicate that in the case studies there is, for example, a significant positive association between functional integration and the profit dummy.

I find that companies which have been particularly effective in reducing their physical integration also tend to have reduced their functional integration [0.76, 1%].[34] East German companies which have greatly reduced their functional integration tend to heavily rely on entirely external suppliers [0.62, 5%].[35]

In the Hungarian data the opposite profitability trends prevail. Companies which have experienced below average reductions (or even an increase) in their vertical integration are more likely to be profitable than average [0.43, 10%]. In addition there is consistent evidence that reductions in and a smaller degree of functional integration affect a company's performance negatively: Companies which have an above average degree of functional integration in 1997 are likely to be profitable [0.49, 10%][36]. Similarly using agents external to the companies as suppliers of functional inputs is negatively associated with profitability in both 1997 and 1990 [-0.49, 10% in both cases]. In particular entirely external suppliers, that is those without historic or ownership ties with the company, are associated with reduced profitability in 1996 [-0.42, 10%]. The negative association between procuring inputs from the investor and profitability is noticeable but insignificant.

[34] From a historical perspective I find that companies which were more functionally integrated in 1990 tend to have experienced above average subsequent reductions in their integration [0.62, 5%].
[35] Companies which relied on other companies in the same Kombinat in 1990 (that is they were less than average functionally integrated) tend to have a strong propensity to use separated out suppliers with whom they have historic ties [0.70, 5%] rather than entirely external ones. This might suggest the persistence of a 'relying on local networks' attitude.
[36] In addition companies which were highly functionally integrated in 1990 already have above average profit prospects in 1996 [0.55, 5%].

In the Hungarian data there is no evidence that the companies reducing their physical integration have also reduced their functional integration. I do find, however, that companies which close down input production tend to end up relying on entirely external suppliers [0.77, 1%]. Similarly reductions in functional integration are associated with a reliance on the investor [0.53, 5%] and on entirely external suppliers [0.64, 5%] rather than on suppliers with whom the company has historic ties. There is strong evidence that functional integration with the investor is the predominant way in which companies achieve a low on-site integration in 1997 [0.89, 1%].

HYPOTHESIS 2:

- *an ambiguous association between profitability and the creation of holding companies by separating out ancillary units*

*Summary: Separating out ancillary units is clearly associated with other[37] restructuring measures which in turn have been shown to be associated with better performance (see Hypothesis 1). Consequently separating out ancillary units is unambiguously associated with higher profitability in both countries.*

By 1997/6 a policy of separating out ancillary units is strongly associated with a higher probability of being profitable in both the East German [0.76, 5%] and Hungarian [0.67, 5%] data sets. Interestingly in Germany separating out ancillary units seems to have been a concomitant of high reductions in physical integration

[0.50, 10%] and of obtaining a low level of functional vertical integration by 1996 [0.73, 5%]. In Hungary on the other hand a policy of separating out ancillary units seems to be a partial substitute for closures: Companies which have separated out ancillary services have overall closed a below average number of input producing facilities [-0.52, 5%], remain more functionally integrated [0.43, 10%] and use fewer than average subcontractors with whom they have no historical or ownership ties [-0.59, 5%]. I can conclude that in both countries separating out ancillary units is associated with other -and on the country level diametrically opposed- restructuring measures which in turn have been shown to be associated with better performance (see Hypothesis 1).

In addition there is evidence in both data sets that companies separating out ancillary units are actually creating their own background industry because they continue using these newly founded companies as subcontractors [0.49, 10% for Germany; 0.59, 5% for Hungary]. This clearly indicates that one should interpret the policy of separating out units with reference to a country's background industry, that is the availability of alternative, entirely external suppliers [Hypothesis 9].

[37] -and on the country level diametrically opposed-

HYPOTHESIS 3:

- *a positive association between FDI and reductions in vertical integration*

HYPOTHESIS 4:

- *a positive association between FDI and profitability*

*Summary: In neither country data set is there evidence that companies with FDI have experienced above average reductions in their physical and functional integration. There is evidence, however, that they arrange their new supply arrangements in contrast to other companies. There is a tendency to rely on functional inputs from the investor and in Hungary an above average propensity to use entirely external suppliers. There is very weak evidence that in the German context such new supply arrangements are profit enhancing but not in the Hungarian one.*

In the East German data there is no evidence that companies with FDI have reduced their integration more than average. There is clear support, however, for the contention that investors give their subsidiaries access to functional inputs from the headoffices. Companies with an investor who was the main force in the restructuring of the product range are very likely to be functionally integrated with their investor [0.78, 1%] and FDI in general is associated with a smaller than average propensity to use entirely external suppliers [-0.49, 10%]. These observations can either be interpreted as evidence for extensive knowledge transfer to the subsidiary or as the creation of 'cathedrals in the desert'. Only qualitative case study evidence can help to

distinguish between these two interpretations. The associations between the investor related dummies and profitability in 1997 are positive but insignificant.

In Hungary investors seem to have had a propensity to endorse restructuring measures which in the Hungarian context tend to be associated with lower profitability (see Hypothesis 1).[38] Investors, especially those who took an active interest in the restructuring of the product range, tend to be less likely to separate out ancillary units [-0.77, 5%], tending to prefer liquidating non-core activities. Consequently they are also unlikely to be using subcontractors with whom the company has historic ties [-0.78, 1%] and they have an above average propensity to use entirely external suppliers [0.42, 10%]. FDI in general is also associated with functional integration with the investor [0.54, 5%] and a below average degree of on-site functional integration in 1997 [-0.45, 10%]. There is no evidence, however, that companies with FDI have actually experienced greater overall reductions in physical and functional integration rather than investors being attracted to companies which were less integrated a priori.

4.2 Secondary hypotheses relating to the implications of the transaction costs literature

HYPOTHESIS 5:

- *positive association between opportunistic suppliers and vertical integration*

*Summary: Support in the East German data, none in the Hungarian one*

In accordance with Hypothesis 5 I find that East German companies with opportunistic suppliers tend to not only remain functionally more integrated in 1996 [0.49, 10%] but have also experienced smaller reductions in this respect [-0.60, 5%]. As would be expected on the basis of the transaction cost literature opportunistic suppliers are associated with a lower probability of being profitable, especially in 1995 (-0.60, 5%). The associations found in the Hungarian data set are generally insignificant with respect to opportunism.

HYPOTHESIS 6:

- *positive association between reductions in vertical integration and companies procuring mainly standardised products (that is products involving a low asset specificity)*

*Summary: Support in both the East German data and Hungarian*

[38] The associations between the investor dummies and profitability are negative but insignificant.

The East German data suggests that companies with more standardised inputs have less opportunistic suppliers [0.84, 1%]. This strongly supports the suggestion that more standardised products involve a lower asset specificity and hence a lower risk of lock-in and opportunism. In accordance with Hypothesis 6 companies procuring more standardised products are also found to have more strongly reduced their physical and functional integration [0.48, 10% in both instances]. In the Hungarian data as well I find that companies procuring standardised inputs have experienced above average net decreases in their physical integration [-0.54, 5%].

HYPOTHESIS 7:

- *positive association between company size (proxied by the number of employees) and vertical integration*

*Summary: No support in the Hungarian data and the opposite trend holds in the east German context*

In the East German data the general impression is that larger companies have reduced their vertical integration more than average. I find that both companies which were large in 1990 and are so in 1996 have closed an above average number of input producing facilities [0.56, 10% and 0.77, 1% respectively] and have also experienced above average reductions in their functional vertical integration [0.48, 10%]. In addition they have had an above average propensity to reduce their integration by

separating out ancillary units [0.84, 1%]. The data suggests that companies which were large in 1990 have mainly reduced their functional integration by obtaining inputs from their investor instead in 1996 [0.54, 10%].[39] In the Hungarian data both size variables are entirely insignificant and there is no support whatsoever for Hypothesis 7.

## 5. Conclusions and interpretations[40]

I have found evidence of a startling difference with respect to the restructuring of enterprise boundaries. In East Germany restructuring measures resulting in lower vertical integration are associated with higher profitability. In the Hungarian context, however, the opposite trend holds. Since managers in both Hungary and East Germany refer to similar considerations when discussing their company's vertical integration, one has to examine how differences between the two countries affect the importance of the theoretical and empirical arguments for and against vertical integration.

The very first point to emerge from the case studies in this context is that no East German company endorsed a high degree of vertical integration because of a non-

[39] Both in the East German and Hungarian data there is some indication that investors have been deterred from investing into large companies which presumably offered a bigger restructuring challenge. A company's size in 1990 is negatively associated with FDI at the 10% level in both countries.

[40] This section is best started by a caveat: All my conclusions relate only to the twenty companies studied. Although I am hence unable to make statements about trends pertaining to Hungarian and East German companies in general, my case studies nevertheless are well suited to show the degree of support found for the hypotheses studied and to indicate avenues for future research.

existent or unstable background industry, while this was a commonly cited reason in Hungary. Through reunification East German companies were able to access pre-existing and stable West German suppliers, effectively giving them a ready-made background industry in relatively close proximity. In addition these well-established and large suppliers made scale economy arguments in favour of internal input production in large East German companies irrelevant. These considerations explain why East German companies only separated out, if at all, service providers whom it was advantageous to have in immediate proximity, while Hungarian companies engaged in measures aimed at creating their own background industry on a much larger scale.

My data clearly suggests that far from being an instance of 'ambiguous restructuring' creating your own background industry by separating out units is a profitable strategy. This is especially the case in an economy such as Hungary which characterised by a limited choice of suppliers and a high degree of supply uncertainty which is not necessarily related to variability in output markets. In this context the creation of holding companies with ownership stakes in these separated out units can reinforce and formalise the overall risk-hedging effect: The holding company benefits from an m-form organisation giving its subsidiaries a high degree of flexibility but at the same time the flow of information from below and the shared company culture and identity are preserved. The desire to obtain cost savings, increased flexibility in choosing suppliers and a reduction in the internal bureaucracy in the company was shared by

both East German and Hungarian companies, but only the East German companies had immediate access to suitable pre-existing supplier networks.

Hungarian companies not only faced greater uncertainty in their dealings with potential external suppliers because these were likely to face strong economic and quality problems themselves but also because of a higher level of uncertainty in the wider framework within which the transactions are located.[41] The optimal degree of vertical integration can be assumed to also depend on environmental factors such as the overall economic, legal and political uncertainty.

- When a country is characterised by relatively low levels of *economic uncertainty*, it is easier to negotiate longer-term contracts as one can assume that price and demand fluctuations as well as bankruptcy rates will be low enough not to entail prohibitively frequent renegotiations.
- Low *legal uncertainty* in the form of a well-established legal framework and a sufficient number of precedents entails that, should problems in the interpretation of contracts arise in the future, it is predictable how these will be resolved by a recourse to the law.
- Low levels of *political uncertainty* mean that, firstly, independently of which political party or social grouping gains power, parties to a contract can reasonably expect that the overall economic, legal and political framework within which they operate is not going to be substantially changed (by, for example, the introduction

[41] Lyons (1996) gives a review of the theoretical arguments and empirical evidence relating to how environmental and behavioural risk are likely to affect inter-firm contracting.

of nationalisation programmes) and, secondly, that changes in government are not going to entail changes in the two companies' management due to political appointments.

The transaction costs involved in the negotiation and implementation of contracts increase with all three forms of uncertainty [see also Williamson (1998) and Coase (1998)]. In this situation vertical integration has distinct advantages:

- The parent does not face the uncertainty of the supplier's unexpected bankruptcy,
- it can resolve problems arising from demand and price fluctuations without having to renegotiate any supply contracts (resulting in greater flexibility and faster decision making in more integrated structures),
- these resolutions are unlikely to lead to court cases with an uncertain outcome and,
- to the extent that political uncertainty is likely to affect the integrated supplier, the parent is going to have more information on the nature of this political uncertainty than if it did not have ownership ties with the supplier.

If, however, a company operates in an environment such as East Germany where the overall level of political and economic uncertainty is low, then the uncertainty and transaction costs involved in contractual relationships is likely to be outweighed by the benefits of using contractual rather than hierarchical control mechanisms. Since Hungary is arguably characterised by higher levels of economic, legal and political uncertainty than is East Germany, one would, on the basis of the above arguments,

expect a higher degree of vertical integration to be profitable in Hungary and a lower one in East Germany. Indeed this reasoning, together with the absence of a well-developed background industry in Hungary, seems to be driving our results. The questions whether a) there are suitable external suppliers and b) whether the degree of environmental uncertainty can be satisfactorily resolved by contractual means are logically prior to considerations based on opportunism and asset specificity.

It is these two considerations which best explain my results. The implications of transaction cost theory concerning opportunistic suppliers and standardised products are generally borne out but are arguably not determining the difference in the relative degree of 'optimal' vertical integration in the two countries. There is strong evidence that East German companies with more opportunistic suppliers do indeed exhibit a higher degree of vertical integration, but opportunism does not even enter into the consideration of Hungarian companies because their supply arrangements are dominated by a need to deal with a lacking background industry and a large amount of environmental uncertainty. This is so even though the mean value for opportunism is even higher in Hungary (but not significantly so) than it is in East Germany.

Considerations based on the degree of asset specificity in a company's inputs are even more clearly dominated by environmental factors in the Hungarian context. In both Hungary and especially East Germany I find that companies with more standardised products will reduce both their functional and physical integration. Since the companies in the Hungarian data set procured standardised products to a higher extent

this effect should lead to *less* vertical integration in Hungary than East Germany. I observe the opposite and environmental consideration are clearly dominating the Hungarian companies' vertical integration decision.

Many investors do not seem to understand these important differences between the country-specific factors determining the profitability of vertical integration in the East German and Hungarian contexts. There has been a general tendency to try to impose a lower degree of vertical integration as found in their Western subsidiaries, but there is no evidence that the overall degree of vertical disintegration is greater in companies with FDI.[42] What differentiates companies with FDI, however, is their reliance on entirely external suppliers and a usually high degree of functional integration with the investor. Especially in Hungary investors seem to have been unwilling to actively contribute to the development of a local background industry by separating out ancillary units. The preferred method of dealing with non-core units has been their liquidation, with the intention of buying these inputs from external suppliers. In the East German context these policies tended to work well especially since the pre-existing supply network tend to be the investor's. In the Hungarian data set, however, after closing down non-core vertical units many investors ended up having to choose between incurring high transportation costs by importing inputs from non-local suppliers (other companies in their conglomerate, for example,) or having to rely on embryonic and unstable local companies. In this context they frequently found that the

[42] This might be partly due to the fact that investors tended to be attracted to companies which were smaller and less integrated to start off with.

most effective local suppliers were those which had been separated out from their Hungarian rivals.

Functional integration with the investor is a two-edged sword. On the one hand it can lead to genuine knowledge transfer and an opening of marketing and supply channels for the subsidiary. On the other hand, however, it can amount to a situation where the investor tries to transfer knowledge and impose practices which do not work well in the context of local idiosyncrasies. Furthermore functional integration can lead to increased bureaucracy, reducing the subsidiary's flexibility in responding to local conditions. Since East and West Germany share the same laws, regulations, competitors and many cultural factors, one can expect most of the functional knowledge and practices which are transferred by West German investors to be appropriate. The possible negative effects of functional integration with the investor are more likely to be of importance in the Hungarian context.

Overall foreign investors seem to have a tendency to try to achieve vertical disintegration by liquidating non-core activities and as a consequence tend to endorse new supply arrangements which are performance enhancing in the East German context but not in the Hungarian one. This can be traced back to a failure to fully appreciate the importance of the absence of a well-developed background industry and the impact of the relatively high degree of economic, legal and political uncertainty in Hungary.

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# Data Appendix

## Table 1a : Vertical integration in the East German companies before 1990[76]

| Company | Bilanzierung[77] | Investment planning[2] | Personnel | Product development | Process development | Input procurement | Maintenance | Distribution | Transportation |
|---|---|---|---|---|---|---|---|---|---|
| D1 | I, K | I, K | I | I (very small scale) | I (very small scale) | I | I, K | N.A, was incorporated into the plan | I |
| D2 | I | I | I | I | I | I | I | N.A | I |
| D3 | I, K | I, K | I | I | I | I | I | I | I |
| D4 | I | I | I | I | I | I | I | I | I |
| D5 | I | I | I | I | I | I | I | I | I |
| D6 | I | I | I | I | I | I | I | I | I |
| D7 | I | I | I | I | I | I | I | I | I |
| D8[78] | K | I, K | I, K | I, K | I, K | I | I, K | I, K | I |
| D9 | I | I | I | I | I | I | I | I | I |

[76]Which function were catered for (**I**) directly in this company [in a separate internal division], (**K**) in other companies belonging to the same Kombinat or (**E**) bought from external sources?

[77] Bilanzierung refers to checking whether production in the company is running according to the plan given from the ministry. Bilanzierung and Investment planning were specific to the previous economic system and thus do not have a narrowly corresponding activity in Table 2a.

[78] K in the case of company D8 effectively stands for conmpany D6, since company D6 was the *Stammbetrieb* of the Kombinat to which company D8 belonged as well.

## Table 2a: Vertical integration in the East German companies in 1996[79]

| Company | Personnel | Design[80] | Quality control | R&D | Procurement | Maintenance | Sales[81] | Transportation | Marketing[82] | Customer Services | Computing Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | I | INV | I | None | I | E (sub) | I | E (sub) | I | give quality guarantees | I |
| **D2** | I | None | I | None | I | E | None | I (logistics) E | rely on word of mouth | give quality guarantees | I |
| **D3** | I | None | I | None | I | I,E | I | I (logistics) E | I | no separate department | I |
| **D4** | I | INV | I | INV | INV | I | I | E | I | I | I, INV |
| **D5** | I | I, INV | I | I, INV | I | I | I | I (logistics) E | I | I | I |
| **D6**[83] | I | I | I | I, E | I | N.A | I | N.A | I | give quality guarantees | I |
| **D7** | I | E | I | E | I | E (sub), I | I | E (sub) | I,E | none | I,E |
| **D8** | I | I, INV | I | I, INV | I | E (sub) | I | E (sub) | I | I | INV, E |
| **D9** | I | None | I | I, INV | I | I | I | I, E | I, E | I | I, INV |

[79] Which activities are at the moment being (I) internally supplied, (INV) supplied by the investor or are being (E) bought from external sources? E(sub) stands for independent external companies which are effectively subsidiaries of the company being interviewed, in the sense that these suppliers have been originally separated out from their customer and still maintain close ties with him, frequently including ownership ties.

[80] Design, Quality Control and R&D correspond to Product and Process Developement in Table 1a.

[81] Sales corresponds to Distribution in Table 1a.

[82] Customers Services, Marketing and highly developed Computing Facilities can be all seen as 'new activities' with no equivalent entries in Table 1a.

[83] This company does not currently have an investor.

## Table 2b: Vertical integration in the Hungarian companies in 1996/7[3]

| Company | Personnel | Technical Design[4] | Quality control | R&D | Procurement | Maintenance | Sales[5] | Transportation | Marketing[6] | Customer Services | Computing Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H1 | I | I | I | I | I | I, E(sub) | I | I (raw materials), E (final products) | I | I | I, E |
| H2 | INV | (I), E | I, INV | I, INV | (I), INV | I, E | INV | E | INV | INV | INV |
| H3 | I | I, (INV) | I, (INV) | I, INV | I, INV | I, E (sub) | I., (INV) | E (sub) | I, (INV) | I | I |
| H4 | I | I | I | I, INV | I, INV | I, E (sub) | I, INV for export only | E (sub) | I, (INV) | I | I, INV |
| H5 | I | I | I | E (buy licenses) | I | (I), E (sub) | I | I, E (sub) | I | I | I |
| H6 | I | I | I | I, E | I | I, E (sub) | I | E (sub) | I | I | I, E |
| H7 | I | I, (INV) | I | I | I, INV | I | I | I, (INV) | I, INV | I | I |
| H8 | I | I | I | I | I | I | I | E (sub) | I | I | I |
| H9 | I | I, INV | I | I | I | I | I | I | I | I | I |
| H10 | I | I | I, E | I, INV, E | I | I, INV, E | I | E | I | I | E |
| H11 | I | I | I wholly owned subsidary | I, E universities | I | I wholly owned subsidary | I | I | I | I wholly owned subsidary | I |

[3] Which activities are at the moment being (I) internally supplied, (INV) supplied by the investor or are being (E) bought from external sources? E(sub) stands for independent external companies which are effectively subsidiaries of the company being interviewed, in the sense that these suppliers have been originally separated out from their customer and still maintain close ties with him, frequently including ownership ties. Entries in parentheses indicate that this agent is relatively less important in providing the relevant function.

[4] Design, Quality Control and R&D correspond to Product and Process Developement in Table 1b.

[5] Sales corresponds to Distribution in Table 1b.

[6] Customers Services, Marketing and highly developed Computing Facilities can be all seen as 'new activities' with no equivalent entries in Table 1b.

## Table 3:
## List of variables summarising changes in physical and functional vertical integration

| | |
|---|---|
| **D π95** | 1 if the company is profitable in 1995, 0 otherwise |
| **D π97** | 1 if the company is profitable in 1995 (97), 0 otherwise |
| **H π96** | 1 if the company is profitable in 1995, 0 otherwise |
| **D(H) size 90** | number of employees in 1990 |
| **D(H) size 96(7)** | number of employees in 1996/7, employees working for partially owned subsidiaries which have been separated out are not included |
| **D (H) ancill** | 1 if the company has separated out ancillary services into new companies, 0 otherwise |
| **D(H) standard** | percentage of total inputs which are standardised and obtainable, for example, from catalogues. This variable captures the extent to which the company in question procures a homogenous products with a low asset specificity |
| **D(H) opport** | Do you think that your suppliers would use an unforeseen eventuality to their advantage, that is are your suppliers opportunistic? (1 , the supplier is not at all opportunistic----> 6, the supplier is highly opportunistic) |
| **H Pnew(vert)** | number of major vertical products which have been newly introduced[i] |
| **D (H) Pclosed (vert)** | number of major product groups which have been closed down and where the closure constitutes a reduction in vertical integration |
| **H Δ pvertint** | H Pnew (vert) minus H Pclosed (vert): This variable captures the net effect on physical vertical integration of the closure of (vertical) product lines and the introduction of new ones[ii] |
| **D 90 internal** | The number of functions (out of a maximum of 9) which were catered for internally in 1990. |
| **D 90 kombinat** | The number of functions (out of a maximum of 9) which were catered for by other companies belonging to the same conglomerate (Kombinat) in 1990. |
| **H 90 external** | The number of functions (out of a maximum of 9) which are sub-contracted out to suppliers external to the conglomerate in 1990.[iii] |
| **D (H) 96(7) internal** | The number of functions (out of a maximum of 11) which are catered for internally in 1996. |
| **D (H) 96(7) investor** | The number of functions (out of a maximum of 11) which are catered for by the investor (that is other companies in the acquiring conglomerate) in 1996. |
| **D (H) 96(7) subcontr** | The number of functions (out of a maximum of 11) which are sub-contracted out to suppliers which originally belonged to the company being interviewed and maintain close ties with it in 1996. |
| **D (H) 96(7) external** | The number of functions (out of a maximum of 11) which are sub-contracted out to external suppliers in 1996 (7). |
| **D (H) %90out** | Percentage of functions (9=100%) which were catered for by outside units (that is other companies in the Kombinat). |
| **D(H) %96(7) out** | Percentage of functions (11=100%) which were catered for by outside units (that is by the investor, separated-out companies or external suppliers). |
| **D(H) %Δ fvertint** | D(H) %96(7)out minus D(H) %90out: This variable captures the net change in functional vertical integration (as a percentage of total functions which are catered for by external units) between 1990 and 1996 (7). |
| **D (H) FDI** | 1 if the company has a foreign direct investor, 0 otherwise |
| **D (H) IMPPR** | 1 if the investor was the most important force in determining changes in the product range;<br>0.5 if the investor and the company's "old" management had roughly the same influence;<br>0 if the "old" management was the main force in determining changes in the product range; |

[i] In the German data set no new products have been introduced which constituted an increase in the vertical integration of the company. Consequently this variable is zero for all companies in the German data set and has not been included there.

[ii] Since no East German company has introduced any new vertical products the net change of physical vertical integration in East Germany is captured by D Pclosed (vert).

[iii] In East Germany in 1990 no functions were supplied by companies which did not at least belong to the same conglomerate (see Table 1a). Consequently this variable is zero for all companies in the German data set and has not been included there.

## Table 4a:
## Summary of the East German data on changes in physical and functional vertical integration

| | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | | mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dπ95 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | | 0.44 |
| Dπ97 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | | 0.77 |
| Dsize90 | 2000 | 330 | 2021 | 9500 | 2700 | 6500 | 6800 | 4500 | 3000 | | 4150 |
| Dsize96 | 600 | 248 | 270 | 722 | 1033 | 320 | 800 | 500 | 700 | | 577 |
| D ancill | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | | 0.66 |
| D standard | 75 | 99 | 100 | 100 | 80 | 0 | 90 | 10 | 30 | | 65 |
| D oppor | 2 | 1 | 3 | 2 | 3 | 6 | 2 | 6 | 3 | | 3.11 |
| D pclosed (vert) | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | | 0.33 |
| D90 internal | 6.5 | 8 | 8 | 9 | 9 | 9 | 9 | 5 | 9 | | 8.5 |
| D90 kombinat | 1.5 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | | 0.72 |
| D96 internal | 6.5 | 5 | 7 | 6.5 | 9.5 | 8 | 5.5 | 7 | 8 | | 7 |
| D96 investor | 1 | 0 | 0 | 3.5 | 1 | 0 | 0 | 1.5 | 1 | | 0.88 |
| D96 subcontr | 2 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2 | 0 | | 0.38 |
| D96 external | 0 | 1.5 | 1 | 1 | 0.5 | 0.5 | 3 | 0.5 | 1 | | 1.2 |
| D% 90out | 16 | 0 | 11 | 0 | 0 | 0 | 0 | 44 | 0 | | 7.8 |
| D% 96out | 27.2 | 13.6 | 9 | 40.9 | 13.6 | 4.5 | 40.9 | 36 | 18.1 | | 22.5 |
| D% Δ fvertint | 10.6 | 13.6 | -3 | 40.9 | 13.6 | 4.5 | 40.9 | -8 | 18.1 | | 14.5 |
| DFDI | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | | 0.77 |
| DIMPPR | 0 | 0 | 0 | 1 | 0.5 | 0 | 0 | 0.5 | 1 | | 0.33 |

## Table 4b:
## Summary of the Hungarian data on changes in vertical integration and in the companies' horizontal product range

| | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | | mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hπ96 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | | 0.58 |
| H size 90 | 2100 | 2400 | 2500 | 4500 | 5000 | 10500 | 14297 | 1000 | 450 | 650 | 40000 | | 4430 excl.H11 7663 incl.H11 |
| H size 97 | 640 | 1396 | 800 | 2550 | 3500 | 3200 | 9952 | 580 | 100 | 250 | 14500 | | 2270 excl.H11 3406 incl.H11 |
| Hancill | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | | 0.75 |
| H standard | 100 | 90 | 100 | 90 | 100 | 65 | 10 | 100 | 80 | 100 | 100 | | 85 |
| H oppor | 6 | 5 | 2 | 5 | 2 | 5 | 3 | 2 | 4 | 3 | 3 | | 3.6 |
| HPclosed (vert) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | 0.08 |
| Hpnew (vert) | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | | 0.25 |
| HΔ pvertint | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | | 0.16 |
| H90intern al | 9 | 7.5 | 3.5 | 9 | 9 | 9 | 9 | 9 | 7 | 9 | 9 | | 8.08 |
| H90 kombinat | 0 | 0.5 | 5.5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | | 0.75 |
| H90 external | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0.16 |
| H97 internal | 9.5 | 2.5 | 6.5 | 7 | 9 | 8.5 | 9 | 10 | 10.5 | 6.66 | 10.5 | | 8.18 |
| H97 investor | 0 | 6.5 | 3 | 2.5 | 0 | 0 | 2 | 0 | 0.5 | 0.66 | 0 | | 1.26 |
| H97 subcontr | 0.5 | 0 | 1.5 | 1.5 | 2 | 1.5 | 0 | 1 | 0 | 0 | 0 | | 0.79 |
| H97 external | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3.16 | 0.5 | | 0.8 |
| H%90out | 0 | 5.5 | 61 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | | 8.35 |
| H%97out | 13.6 | 77.2 | 40.9 | 36.3 | 18.1 | 22.7 | 18.1 | 9.09 | 4.54 | 39.3 | 4.54 | | 25.5 |
| H% Δvertint | 13.6 | 71.7 | -20.5 | 36.3 | 18.1 | 22.7 | 18.1 | 9.09 | -17.6 | 39.3 | 4.54 | | 17.2 |
| HIMPPR | 0.5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | | 0.45 |
| HFDI | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | | 0.62 |

## Table 5a: Correlation matrix for the East German variables[i]

| | Dπ95 | Dπ97 | Dsize90 | Dsize96 | D ancill | D standard | D oppor | D pclosed (vert) | D90 internal | D90 kombinat | D96 internal | D96 investor | D96 subcontr | D96 external | D% 90out | D% 96out | D% Δ fvertint | DFDI | DIMPPR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dπ95** | 1.00 | 0.48 | -0.39 | 0.33 | 0.16 | **0.50*t** | **-0.60**t** | 0.32 | 0.05 | -0.24 | -0.26 | -0.32 | 0.27 | 0.27 | -0.25 | 0.08 | 0.28 | -0.06 | -0.46 |
| **Dπ97** | | 1.00 | -0.02 | **0.60**t** | **0.76**** | 0.21 | -0.45 | 0.38 | -0.18 | 0.09 | -0.21 | 0.44 | 0.37 | 0.16 | 0.09 | **0.64**t** | 0.46 | 0.36 | 0.44 |
| **Dsize90** | | | 1.00 | 0.29 | 0.31 | -0.13 | 0.24 | **0.56*t** | 0.30 | -0.13 | -0.01 | **0.54*t** | 0.02 | 0.24 | -0.12 | **0.55*t** | **0.57*t** | **-0.48*t** | 0.36 |
| **Dsize96** | | | | 1.00 | **0.84***t** | 0.14 | -0.20 | **0.77***t** | 0.29 | -0.20 | 0.43 | 0.41 | 0.11 | 0.11 | -0.20 | 0.43 | **0.54*t** | 0.04 | **0.50*t** |
| **D ancill** | | | | | 1.00 | -0.03 | -0.09 | **0.50*t** | -0.15 | 0.22 | 0.18 | **0.59**t** | **0.49*t** | 0.00 | 0.21 | **0.73**t** | 0.42 | 0.19 | 0.58 |
| **D standard** | | | | | | 1.00 | **-0.87 ***t** | **0.48 *t** | 0.27 | -0.39 | -0.43 | 0.08 | -0.17 | 0.39 | -0.39 | 0.18 | **0.48*t** | 0.28 | -0.14 |
| **D oppor** | | | | | | | 1.00 | -0.33 | -0.33 | **0.51*t** | **0.49*t** | -0.06 | 0.14 | -0.41 | **0.52*t** | -0.19 | **-0.60**t** | -0.29 | 0.03 |
| **D pclosed (vert)** | | | | | | | | 1.00 | **0.50*t** | -0.40 | 0.09 | 0.40 | -0.09 | 0.43 | -0.40 | **0.49*t** | **0.76***t** | -0.19 | 0.29 |
| **D90 internal** | | | | | | | | | 1.00 | **-0.95***t** | 0.21 | -0.07 | **-0.74**t** | 0.41 | **-0.95***t** | -0.26 | **0.61**t** | -0.38 | 0.17 |
| **D90 kombinat** | | | | | | | | | | 1.00 | -0.05 | 0.14 | **0.70**t** | -0.37 | **1.00***t** | 0.31 | **-0.62**t** | 0.30 | -0.04 |
| **D96 internal** | | | | | | | | | | | 1.00 | 0.10 | -0.32 | **-0.55*t** | -0.05 | -0.43 | -0.31 | 0.10 | 0.37 |
| **D96 investor** | | | | | | | | | | | | 1.00 | 0.01 | -0.28 | 0.14 | **0.59**t** | 0.36 | 0.44 | **0.78***t** |
| **D96 subcontr** | | | | | | | | | | | | | 1.00 | 0.00 | **0.70**t** | **0.61**t** | -0.11 | -0.08 | -0.26 |
| **D96 external** | | | | | | | | | | | | | | 1.00 | -0.37 | 0.35 | **0.62**t** | **-0.49*t** | -0.17 |
| **D% 90out** | | | | | | | | | | | | | | | 1.00 | 0.31 | **-0.62**t** | 0.30 | -0.03 |
| **D% 96out** | | | | | | | | | | | | | | | | 1.00 | **0.56*t** | 0.00 | 0.33 |
| **D% Δ fvertint** | | | | | | | | | | | | | | | | | 1.00 | -0.27 | 0.31 |
| **DFDI** | | | | | | | | | | | | | | | | | | 1.00 | 0.44 |
| **DIMPPR** | | | | | | | | | | | | | | | | | | | 1.00 |

## Table 5b: Correlation matrix for the Hungarian variables[ii]

| | Hx96 | H size 90 | H size 97 | Han cill | H stan dard | H oppor | HPclosed (vert) | Hpnew (vert) | HΔ pvertint | H90inter nal | H90 kombina t | H90exter nal | H97inter nal | H97 investor | H97 subcontr | H97exter nal | H%90 out | H%97 out | H%Δ fvertint | HIMP PR | HFDI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hx96** | 1.00 | | | | | | | | | | | | | | | | | | | | |
| **H size 90** | 0.35 | 1.00 | | | | | | | | | | | | | | | | | | | |
| **H size 97** | **0.47** *t | **0.95** | 1.00 | | | | | | | | | | | | | | | | | | |
| **Hancill** | **0.67** **nc | 0.36 | 0.39 | 1.00 | | | | | | | | | | | | | | | | | |
| **H standard** | -0.07 | -0.15 | -0.39 | -0.12 | 1.00 | | | | | | | | | | | | | | | | |
| **H oppor** | -0.11 | -0.12 | -0.19 | -0.16 | -0.06 | 1.00 | | | | | | | | | | | | | | | |
| **HPclosed (vert)** | -0.35 | -0.20 | -0.23 | **-0.52** **t | 0.18 | -0.15 | 1.00 | | | | | | | | | | | | | | |
| **Hpnew (vert)** | 0.15 | -0.05 | 0.16 | -0.08 | -0.35 | **-0.43** *t | **0.52** **t | 1.00 | | | | | | | | | | | | | |
| **HΔpvertint** | **0.43** *t | 0.09 | 0.35 | 0.29 | **-0.54** **t | -0.39 | -0.15 | **0.77** ***t | 1.00 | | | | | | | | | | | | |
| **H90internal** | **0.55** **t | 0.25 | 0.30 | 0.13 | -0.17 | 0.25 | 0.16 | 0.31 | 0.24 | 1.00 | | | | | | | | | | | |
| **H90 kombinat** | **-0.49** *t | -0.23 | -0.28 | -0.04 | 0.16 | -0.31 | -0.14 | -0.28 | -0.21 | **-0.98** ***t | 1.00 | | | | | | | | | | |
| **H90external** | -0.35 | -0.15 | -0.14 | **-0.52** **t | 0.06 | 0.32 | -0.10 | -0.19 | -0.15 | -0.13 | -0.04 | 1.00 | | | | | | | | | |
| **H97internal** | **0.49** *t | 0.35 | 0.33 | **0.43** *t | -0.10 | -0.22 | -0.21 | 0.02 | 0.18 | 0.32 | -0.18 | **-0.79** ***t | 1.00 | | | | | | | | |
| **H97 investor** | -0.36 | -0.22 | -0.15 | -0.37 | -0.09 | 0.20 | -0.12 | -0.16 | -0.09 | -0.43 | 0.28 | **0.84** ***t | **-0.89** ***t | 1.00 | | | | | | | |
| **H97 subcontr** | 0.15 | -0.25 | -0.26 | **0.59** **t | 0.24 | -0.19 | -0.31 | -0.05 | 0.17 | -0.13 | 0.18 | -0.31 | 0.03 | -0.17 | 1.00 | | | | | | |
| **H97external** | **-0.42** *t | -0.18 | -0.24 | **-0.59** **t | 0.27 | 0.17 | **0.77** ***t | 0.38 | -0.14 | 0.23 | -0.31 | 0.39 | **-0.51** *t | 0.15 | -0.29 | 1.00 | | | | | |
| **H%90 out** | **-0.49** *t | -0.23 | -0.28 | -0.04 | 0.16 | -0.31 | -0.14 | -0.28 | -0.21 | **-0.98** ***t | **1.00** ***t | -0.04 | -0.18 | 0.28 | 0.18 | -0.31 | 1.00 | | | | |

| | Hπ96 | H size 90 | H size 97 | Han cill | H stan dard | H oppor | HPclosed (vert) | Hpnew (vert) | HΔ pvertint | H90inter nal | H90 kombina t | H90exter nal | H97inter nal | H97 investor | H97 subcontr | H97exter nal | H%90 out | H%97 out | H%Δ fvertint | HIMP PR | HFDI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H%97 out | **-0.49** *t | -0.35 | -0.33 | **-0.43** *t | 0.11 | 0.22 | 0.21 | -0.02 | -0.18 | -0.32 | 0.18 | 0.79 | **-1.00** ***t | **0.89** ***t | -0.03 | 0.51 | 0.18 | 1.00 | | | |
| H%Δ fvertint | -0.05 | -0.12 | -0.07 | -0.33 | -0.03 | 0.41 | 0.28 | 0.18 | 0.01 | **0.45** *t | -0.58 | **0.69** ***t | **-0.70** ***t | **0.53** **t | -0.16 | **0.64** **t | **-0.58** **t | **0.70** ***t | 1.00 | | |
| HIMPP R | -0.37 | -0.27 | -0.15 | **-0.77** **nc | -0.39 | 0.23 | 0.40 | 0.34 | 0.09 | 0.02 | -0.09 | 0.40 | -0.28 | 0.35 | **-0.78** ***t | **0.42** *t | -0.09 | 0.28 | 0.30 | 1.00 | |
| HFDI | -0.31 | **-0.45** *t | -0.35 | -0.46 | -0.18 | 0.35 | 0.24 | 0.04 | -0.13 | -0.38 | 0.34 | 0.24 | **-0.45** *t | **0.54** **t | -0.40 | 0.13 | 0.34 | **0.45** *t | 0.13 | **0.66** **nc | 1.00 |

[i] In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-10\%)} = 2.7$, $X^2_{(critical-5\%)} = 3.84$, $X^2_{(critical-1\%)} = 6.63$. We find that the uncorrected $X^2$ statistic is significant at the 10% level for associations of 0.60 [$X^2 = 2.97$]. Consequently the association of 0.58 between DIMPPR and Dancill is insignificant (only significant at the 15% level). Associations of 0.71 are significant at the 5% level. Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. The association of 0.76 between Dancill and Dπ97 yields a corrected (4.17, merging 0.5 with 1 observations) and an uncorrected (9.07, for a $X^2$ distribution with two degrees of freedom) test statistic which are both significant at the 5% level. The significance levels reported in Table 3a refer to the uncorrected test statistics. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^7_{0.15} = 1.11$, $t^7_{0.10} = 1.41$, $t^7_{0.05} = 1.89$, $t^7_{0.01} = 2.99$. We find that in both cases all associations above 0.48 (t= 1.44) are significant at the 10% level, associations above 0.59 (t= 1.93) are significant at the 5% level and associations above 0.75 (t= 3.00) are significant at the 1% level.

[ii] In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-10\%)} = 2.7$, $X^2_{(critical-5\%)} = 3.84$, $X^2_{(critical-1\%)} = 6.63$. We find that the uncorrected $X^2$ statistic is insignificant for associations of -0.46 [$X^2 = 2.35$]. Associations of 0.66/67 are significant at the 5% level [$X^2 \approx 4.42$ uncorrected, insignificant corrected value]. Associations of -0.77 are significant at the 5% level [$X^2 = 5.19$, insignificant uncorrected value]. Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. Consequently any inferences drawn from uncorrected $X^2$ values should be interpreted with some care. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^9_{0.10} = 1.38$, $t^9_{0.05} = 1.83$, $t^9_{0.01} = 2.82$. We find that for both types of associations all correlation coefficients above 0.42 (t= 1.38) are significant at the 10% level, associations above 0.52 (t= 1.83) are significant at the 5% level and associations above 0.69 (t= 2.85) are significant at the 1% level

## Table 6: Summary of the main statistical findings

| Hypo-thesis | East Germany | Hungary |
|---|---|---|
| 1 | YES | NO- on the contrary<br>- Hungarian data higher functional and physical integration are both associated with a higher probability of being profitable, not a lower one as Hypothesis 1 suggests. |
| 2 | YES<br>- Separating out ancillary units is associated with other restructuring measures, which in turn are profitable<br>- in the East German data these other restructuring measures include reductions in physical and functional integration | YES<br>- Separating out ancillary units is associated with other restructuring measures, which in turn are profitable<br>- in the Hungarian data companies which separate out ancillary units tend to maintain a high degree of vertical integration |
| 3 & 4 | WEAKLY YES for Hypothesis 4 only | NO<br>- all relevant associations are insignificant |
| 5 | YES<br>- companies with opportunistic suppliers remain more integrated | NO<br>- all relevant associations are insignificant |
| 6 | YES<br>- companies with standardised inputs have less opportunistic suppliers and reduce their integration more | YES |
| 7 | NO- on the contrary<br>- larger companies have reduced their integration more | NO<br>- all relevant associations are insignificant |

# Chapter 2

# Social Disintegration? Changes in the internal provision of social services in East German and Hungarian companies 1990-1997


## Abstract

*This chapter examines the way in which enterprises have restructured the extensive social services they used to provide internally, changing the company's degree of vertical integration. Empirical hypotheses derived from the literature on enterprise restructuring are examined both qualitatively and statistically. I find that although the economic literature captures important aspects of social service restructuring in East Germany, developments in Hungary tend to be in stark contrast. There is strong evidence that companies which maintain their internal social service provision and shed less employees actually outperform other companies. This outperformance can be measured in terms of profits, domestic market share and exports. Surprisingly Hungarian companies with FDI show just as strong a persistence in social service provision as those run by local managers. Nor has it been, as generally suggested, a question of time until Hungarian companies follow East German trends and shed their social services. It is not that Hungarian companies are laggards in restructuring social service provision, it is that they have chosen a different restructuring path. Instead of admonishing Hungarian companies for their lack of restructuring we should turn our attention to examining the efficiency rationale behind the choices they have made. Companies which maintain social service provision and maintain historically accepted social responsibility norms tend to benefit from a highly co-operative trade union and workforce. This is an important and overlooked factor enhancing their ability to meet the challenges posed by transition.*

## Introduction

In the early literature[1] the issue as to how enterprises should deal with non-productive social facilities and activities aroused little controversy. Their divestment was recommended to reduce vertical integration and improve efficiency. This chapter examines:

- the extent of social service shedding[2] by different sized companies
- the impact of social service shedding on a company's performance
- whether management style affects the degree of shedding and
- differences in the experiences of East German and Hungarian companies.

These issues are examined from a comparative perspective using extensive qualitative and quantitative case study evidence from twenty newly privatised and state owned East German and Hungarian enterprises[3]. The chapter proceeds as follows: Section 1 provides a survey of the literature. Section 2 derives empirical hypotheses. Section 3 presents the empirical evidence found in my case studies and derives statistical variables. Section 4 confronts the hypotheses. Section 5 concludes.

[1] See, for example, Fisher & Gelb (1991), Dhanji (1991), Aghion, Blanchard & Burgess (1994).
[2] Before 1990 East German and Hungarian companies used to internally provide a wide array of social services such as canteens, childcare facilities, medical surgeries, holiday camps etc. Section 3.1 deals with individual services in greater detail.
[3] A listing of the companies can be found in the Appendix. Section 3.1 discusses the data in greater detail.

## 1. Literature survey

Before 1990 East German and Hungarian companies operated in an economy characterised by bottlenecks. Consequently companies developed a desire for 'reproductive self-containment' (Grabher 1996) which led them to produce as many inputs internally as possible. In addition planners in both countries tended to have a preference for monopolising industrial sectors as it was deemed that larger but fewer enterprises would be easier to control than many small ones. These two forces frequently resulted in the creation of highly vertically integrated local monopolies whose boundaries had been determined by non-market based considerations. Consequently the unbundling of these 'excessively' integrated enterprises [Estrin (1994, p.15)] and the demonopolisation of the industrial sectors they operate in are generally regarded as central to improving efficiency in the enterprise sector of transition economies. Privatisation is frequently seen as a prime way of achieving the former objective and trade liberalisation as a crucial contributor to the latter [see, for example: Gros & Steinherr (1995, p.285)].

This chapter focuses on the social aspects of the unbundling of former state-owned enterprises. This social question derives from the fact that as part of their high vertical integration enterprises were not only engaged in the internal production of physical inputs, but also provided their employees with a wide range of social services, such as crèches, doctors' surgeries, canteens, holiday camps, sports' facilities and the like. Consequently enterprises in Central and Eastern Europe provided a large range of social services to their employees which in Western economies are more commonly

provided by local governments or non-profit organisations. At the same time social protection benefits[4], a common feature of non-wage benefits in many Western economies, tended to be the task of the government [Friedman & Wörgötter (1997)].

In the early literature the issue as to how enterprises should deal with these non-productive social facilities aroused little controversy. They were either not mentioned explicitly and implicitly included in the general recommendation for the need to reduce vertical integration [see, for example: Fisher & Gelb (1991), Dhanji (1991)] or it was, for example, briefly stated that: " State-owned enterprises are typically collections of both production and on-production activities. The reasons which led to such an organisation are gone. Non-production activities, schools, housing, hospitals and the like should be operated independently" [Aghion, Blanchard & Burgess (1994, p. 4)]. Similarly Carlin, Van Reenen and Wolfe (1995, p.428) state that: " ...undertaking restructuring generally entails cuts in employment and the shedding of social assets by the enterprise." The almost unanimous recommendation was divestiture to the local government or, should no alternative operator be found, their ultimate closure.

The reasoning behind this recommendation focused on the efficiency implications of a continued internal provision. Since these social services are non-productive activities they reduce per-capita productivity in the company. Estrin, Schaffer & Singh (1997) have also suggested that overextensive social provision might not only

[4] Benefits which protect employees from falls in income associated with eventualities such as unemployment, sickness and retirement would are generally termed social protection benefits.

raise the costs of enterprise restructuring but also deter potential foreign direct investors. One reason for this is suggested by the Aghion, Blanchard & Burgess (1994) model of restructuring: At any point in time the closure of social services creates groups of 'losers' who will have an incentive to form a coalition against the proposed restructuring measures, thus complicating restructuring. If a company has not shed its social service provision prior to its acquisition by a foreign investor, then an investor will anticipate the future complications which would arise as a consequence of an attempt to implement restructuring measures and might be therefore deterred from investing in the first place. A further concern is the possibility that a persistence of social service provision in former state-owned enterprises would raise the effective wage paid by the state sector and lead to increased set-up costs for new companies, thus distorting their relative efficiency and stifling the growth of a dynamic private sector [Commander & Schankerman (1997)]. Commander & Schankerman as well as Estrin, Schaffer & Singh (1997) are also concerned about the possibility that social services might create attachment in workers and retard their mobility, thus preventing them from moving to more productive sectors.[5]

Based on these cost and efficiency considerations an expectation of rapid restructuring in the provision of social services developed. Since internal provision was primarily associated with negative consequences for the enterprise and economy overall, it was reasonable to expect that not only would enterprises seek to rid

[5] In my case studies a lack of labour mobility was mentioned by several Hungarian interview partners as creating a problem for companies facing labour shortages in certain skill categories (mostly managerial and highly trained blue collar employees). However, nobody mentioned social service provision as being the cause of lack of mobility. It was the rigidities in the housing market which attracted universal blame.

themselves of these non-productive units as quickly as possible, but that they would also be encouraged to do so by the government. Indeed in my interviews I found that most managers in state-owned or privatised enterprises were relatively quick to learn the language of free-market entrepreneurs, stressing the need to focus on core activities and improving efficiency by shedding all non-productive social activities and eliminating the slack induced by overstaffing [see Clark & Soulsby (1998) for a similar finding in Czech enterprises].

Nevertheless over time increasing case study evidence emerged that this expectation of speed has not generally materialised [see, for example, Carlin, Van Reenen & Wolfe (1995) and Friedman & Wörgötter (1997)]. Not only do most companies in Central and Eastern Europe continue to provide social services, but furthermore there is evidence that governments continue to subsidise their provision. There is a discernible tendency in the literature to equate a continuing internal provision of social services with a failure to restructure sufficiently the enterprise's operations. Dobrinsky (1996, p. 402), for example, states that: "The enterprises' responsiveness to the new environment and the changes in their behaviour and performance are the most important indicators of adjustment at the micro level. Enterprise adjustment shows up in changes such as.....restructuring of costs aimed at their reduction by eliminating non-essential and non-productive expenses (for example, the maintenance of social assets)....." Since most of the studies finding a continuity of social service provision tend to only cover data up to 1993 and many of the pressures to restructure can be expected to intensify over time with the progress of, for example, privatisation,

FDI and trade liberalisation, Rein & Friedman (1997, p.147) express a general sentiment when they state that: "The finding of stability in overall benefits is probably a result of the [shortness of the] time period [studied]."

Explanations for the persistence of internal social service provision tend to focus on the power of insiders and the lack of alternative sources of supply, heightening the resistance against their divestiture[6]. When trying to explain the fact that in a survey of overall 117 case studies of Polish, Hungarian and Czech companies they find no examples of companies which have got rid of all or nearly all their social assets Carlin, Van Reenen & Wolfe (1995) put forward the hypothesis that this was due to the continuing power of the companies' insiders, that is the employees and local managers. They summarise their findings by stating that the majority of restructuring efforts undertaken in the initial years of transition were not threatening to insiders and did not require much cash, thus resulting in a general lack of 'deep' restructuring.

Commander & Schankerman (1997, p.3) also blame the "continuing dominance of insiders in decision-making and control in privatised as well as state firms" and add that managers consider social services to be a necessary 'social burden' which is not primarily kept in order to ensure worker attachment but out of a sense of 'social responsibility'. Overall they conclude (p.11) that "from the perspective of firms, these choices [to maintain the internal provision of social services] seem difficult to explain." Based on three case studies in the Czech Republic Clark & Soulsby (1998)

give an explanation for the persistence of social services which ties in with the notion of 'social responsibility': on their account the nature of the inherited enterprise-community relationship, that is of the social embeddedness of the company, impacts on restructuring decisions to reduce overstaffing and to unburden the enterprise of its social and welfare assets. A logical conclusion from all this is that companies will only be able to improve their efficiency by fully shedding their social service provision once the power of insiders and of historically inherited norms is broken by, for example, sale to a foreign direct investor.

## 2. The empirical hypotheses

From the literature surveyed four main empirical questions arise:

- Do large companies continue to provide an above average number of benefits?
- Do companies which provide many benefits underperform those which have shed them more effectively?
- Does management style affect the number of benefits a company provides?
- Have East German and Hungarian companies chosen the same approach to restructuring their social services?

This section explores answers to these questions suggested by the literature surveyed and formulates them in the form of testable empirical hypotheses.

[6] The fact that a different provider is supplying the same level of services at an affordable price should not in itself lead to any resistance. Problems are likely to arise, however, when divestiture is a

2.1 Hypothesis relating the number of benefits provided to company size

*HYPOTHESIS 1:*

- *positive association between firm size (proxied by the number of employees) and number of benefits provided* [See, for example, Commander & Schankerman (1997, p.5) for empirical findings to this effect with respect to Russian and Ukrainian firms and Estrin, Schaffer & Singhh (1997, p.26) for Polish ones.]

Companies which were larger than average in 1990 can be expected to have exhibited higher than average vertical integration. As part of this greater integration I would expect larger companies to have provided a greater number of social services in 1990. To the extent that there is a persistence of historical trends both with respect to firm size and benefit provision, I would expect the same to hold in 1996.

*HYPOTHESIS 2:*

- *positive association between monopoly power (proxied by market share) and number of benefits provided* [Carlin, Van Reenen & Wolfe (1995, p. 440/442), for example, give the favourable financial position associated with a monopoly as a reason for a general lack of restructuring. Others, such as Grosfeld & Roland (1995, p.21), formulate the same idea by stressing the positive incentive effect of demonopolisation.]

Companies with greater than average monopoly power in 1996 can be expected to have experienced fewer pressures to restructure in general and hence to have maintained a larger number of internally provided social services.

2.2 Hypotheses relating the number of benefits provided to performance

The hypotheses in this section are all deduced from the suggestion that a continued social service provision will have negative efficiency implications on the enterprise level: see, for example, Commander & Schankerman (1997, p.2/ 11), Estrin, Schaffer & Singhh (1997, p.25), Dobrinsky (1996, p.402). A company's "future decline" is also an implied consequence of delaying restructuring in the Aghion, Blanchard & Burgess (1994) model. I examine whether these negative efficiency implications can be seen in terms of a company's profitability, market share and export performance.

*HYPOTHESIS 3:*

- *negative association between profits and number of benefits provided*[7]

Due to the negative efficiency implications of a continued internal social service provision I would expect firms which maintain an above average number of internal social services to be less profitable than average.

*HYPOTHESIS 4:*

- *negative association between market share (as an indication of a company's competitiveness) and number of benefits provided*

*HYPOTHESIS 5:*

- *negative association between export performance and number of benefits provided*

To the extent that a continued social service provision is an indication of a general failure to restructure sufficiently the firm's operations [see, for example, Dobrinsky (1996, p.402), Aghion, Blanchard & Burgess (1994, p.4), Carlin, Van Reenen & Wolfe (1995, p.439)] I would expect companies with numerous social services to have a below average market share in 1996[8] and, because they are less internationally competitive, to achieve few exports to the EU and world-wide markets.

## 2.3 Hypotheses relating to management style, that is to the role of insiders and foreign direct investors

*HYPOTHESIS 6:*

- *a negative association between FDI and the number of social services provided*

  [This is an implication of the suggestion that a general lack of "deep restructuring" and the concomitant persistence of social service provision is largely due to a prevalence of privatisation measures which leave insiders in charge: See, for example, Carlin, Van Reenen & Wolfe (1995, p 441), Carlin & Aghion (1996, p.374). See also comments on the general role of foreign direct investors: Estrin, Brada, Gelb & Singh (1995, p.23), Grosfeld & Roland (1995, p.10), for example.]

*HYPOTHESIS 7:*

- *a positive association between insider power and the number of benefits provided*

  [ This is merely another way of expressing the ideas underlying Hypothesis 6.]

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[7] In contrast to their underlying expectations Commander & Schankerman (1997, p.5) find that in their Russian data there was actually a *positive* association between profitability and benefit provision. They do not, however, explore the possible causalities involved.

*HYPOTHESIS 8:*

- *local managers who, deriving from the previous economic order, have a moral conviction that they have a 'social responsibility' are less likely to shed both superfluous employees and the internal provision of social services* [Clark & Soulsby (1998) find support for a variant of this hypothesis in three Czech companies. Commander & Schankerman (1997, p.4 and p.13) mention social responsibility and consider the case of company towns. Estrin, Schaffer & Singhh (1997, p.37) mention the role of 'historically accepted norms'. Usually such factors are merely reported or mentioned but not discussed in detail.]

To the extent that companies do not engage in an efficiency enhancing restructuring of their social services as a result of insider power or due to the historically determined ethical values of local managers, I would expect to find a) a persistence of social service provision in companies in which local managers are in charge and b) that the companies with FDI provide almost no social services internally.

## 2. 4 Hypotheses relating to a comparison between developments in East Germany and Hungary

Both East German and Hungarian companies tended to provide social services internally which in Western market based economies are typically provided by agents external to the company. In both countries companies are in a process of transition to a market based economy. Consequently one can expect that:

[8] It should be stated explicitly that in contrast to Hypothesis 2, Hypothesis 4 assumes that a high market

*HYPOTHESIS 9:*

- *Both East German and Hungarian companies should show an unambiguous trend towards shedding the internal provision of social services.* [The expectation that this trend should hold in all transition economies is evident in the entire literature surveyed.]

The finding of relative stability in internal social service provision tended to be made in studies including only data up to 1993[9] and there was a general expectation that this stability would not last [Rein & Friedman (1997, p.147)]. Even if Hungarian companies had weaker incentives to restructure in an environment characterised by a much more gradualist approach to transition, by 1997 one can expect that Hungarian companies should be starting to catch up with their East German counterparts.

## 3. Variables and case study evidence

The aim of this section is to present the empirical evidence which can then be used to confront Hypotheses 1-9. The case study evidence not only serves as a basis for the statistical variables used in Section 4, but will also help to interpret the statistical results obtained. It is for this reason that this section goes into some detail. Section 3.1 presents the case study evidence on which the statistical variables capturing changes in the provision of social services are based. The reasons given by managers for their continued provision are explored and changes in the provision of individual benefit types are discussed. Section 3.2 presents the 'explanatory' variables which relate to the companies' size and performance. In Section 3.3 I explore the case study

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share is an indication of a company's superior efficiency and competitiveness, rather than of its monopoly power.

evidence pertaining to the role of foreign direct investors, insider power and different management styles in the restructuring process. Tables 1, 2, 3a and 3b in the Data Appendix explain and list all the variables.

3.1 Social service variables

- *Variables capturing changes in the number of social services provided internally*

These include variables capturing the number of benefits provided in 1990 and 1996/7 as well as the change in the number of benefits over this time period. I had seven categories into which benefits could fall and counted the number of categories covered by a given company. These categories were:

1. Food related benefits: canteens or food-tokens,
2. Childcare: kindergartens and crèches,
3. Medical services: on-site doctor's surgeries,
4. Holiday services: hotels, children's camps, financial contributions to holidays,
5. Non-food commodity benefits and presents: subsidies for school books, transportation, Easter and Christmas presents, subsidised on-site shops
6. Housing: housebuyers and -builders loans, provision of dormitories, provision of apartments

[9] See, for example, Carlin, Van Reenen & Wolfe (1995) and the contributions in Rein, Friedman & Wörgötter (1997).

7. Cultural, sports and community activities as well as recreational facilities: libraries, cultural centres, swimming pools, sponsorship of sports' clubs.

This list also provides an indication of the wide range of social services which these companies have historical provided to their employees[10]. My average *German* company provided 4.2 social services in 1990 out of which at most a canteen was left in 1996. Foreign direct investors usually made it a condition of their acquisition that the company sheds all its social services and a certain number of employees first. In this process canteens were kept or upgraded by 'socially minded' investors as 'sweeteners'[11]. Only the two enterprises without FDI (D6, D7) have kept any benefits at all. D7, for example, the holiday camp for children, presents for anniversaries and activities centred at over 1200 former employees who are now retired, such as company fetes with special emphasis on the elderly and young. The personnel manager points out that D7 is the only company in the entire building sector which has kept such services. He attributes this fact to D7 still having a different management culture in this respect than other companies where investors are in the driving seat. D6 as well has kept similar benefits which are all relatively cheap and have a motivational and community-building role.

[10] See Table 2 for more details.

[11] Expressions used by the personnel manager of D4. The impression that even in 1990 the East German companies tended to provide fewer benefits is probably less a reflection of reality than of what interview partners could remember. In East Germany the provision of social services is not an ongoing issue as it is in Hungary, consequently interview partners are less likely to remember precisely all the benefits which the companies used to historically provide.

In *Hungary* the decline in social service provision was much smaller, from an average of 5.7 services in 1990 to 5 in 1997.[12] I asked both managers and trade union representatives why their company had maintained the internal provision of social services.[13] The answers obtained can be grouped into to following categories:

- *they increase productivity by improving loyalty, morale and work motivation*[14]
- *tradition and company culture*[15]
- *'humane' company philosophy* of the investor/ local management[16]
- *maintaining social peace, management's fear of the trade union/* the trade union fought hard to keep the benefits[17]
- they *constitute a compensation for being paid lower monetary wages*[18]
- *tax savings* when compared with providing monetary wage increases[19]

Interestingly only one personnel manager (in H11, incidentally the company which was in state ownership the longest) claims that providing social services is not the task of the company in the first place. Furthermore it is stated in only one company

[12] All the data in this section are taken from Tables 3a and 3b.
[13] PM= personnel manager, MD= managing director, TUR= trade union representative
[14] TUR and PM in H3, PM in D6, H5, H7, H8, MD in H1
[15] MD in H1, PM in H2, H6, H7, D7
[16] TUR in H2, H4, TUR and PM in H8
[17] TUR in H3, H4, H5, H7, PM in H6. The TUR of H4 states that in companies where the trade union is less organised and strong, "employees loose all these benefits without being compensated for this loss by higher wages."
[18] "They are a small compensation and sign of appreciation for the employees in a situation where the company cannot give them many of the financial fringe benefits which employees of West German companies receive." (TUR in D6) "Making sure that employees are looked after socially is also in the management's interest in a country where wages are extremely low when compared to Western levels." (TUR in H5). "The workers would be very annoyed if these things ceased to exist. The attitude is that only if you pay us market rate wages (that is Western level wages), can we be expected to pay a market rate for all these benefits." (TUR in H6) "These benefits could only be taken away from them if people earn so much that they can afford to buy these services outside." (TUR in H7)

(H5) that many of the extensive social activities this particular company engages in detract from its profitability, but the company would not even consider abolishing them because they are so essential for maintaining morale. No company has the medium-run aim of winding its internal provision of social services down, the general aim seems to be to fine-tune existing arrangements.

This overall stability in the number of social services provided by Hungarian companies, does not mean that there have been no changes within individual benefit types. In accordance with other authors Table 2 suggests that there has been a shift away from in-kind benefits towards monetary benefits (vouchers) especially in the area of *food* provision. [See Rein & Friedman (1997, p.145), Fajth & Lakatos (1997, p.183). Both chapters also discuss the other types of benefits.] Only the two smallest enterprises have dropped food provision altogether and two companies, H8 and H2, have even built a new canteen. 81% of the Hungarian enterprises provide food benefits in one form or the other. The popularity of food vouchers was explained by several interview partners in terms of the tax advantages they incur.

*Childcare* has been generally separated out and given to the local government, but in only one case, H3, was the facility closed down altogether. Separating-out childcare facilities seems to have caused little overall controversy, possibly because already historically there were numerous alternative suppliers in this area and employees have generally retained access to their old facilities even after restructuring.

[19] PM in H11

No company with pre-existing *medical services* has scrapped them. Overall 81% of the Hungarian companies in my data provide on-site medical facilities. Employees value the ready access they have to medical care if they can use facilities at work rather than having to go through the GP (rationing) system introduced in 1995. In favour of keeping medical facilities employers give paternalistic reasons, as well as efficiency reasons, such as reduced sick leave.

Astonishingly, all of the companies in my Hungarian data set continue to provide *holiday facilities* to their employees. Rein & Friedman (1997, p.154) suggested that enterprises might be prevented from selling these assets by there being an oversupply of such properties on the market, but I encountered no enterprise which had even tried to sell its holiday facilities all together. As Fajth & Lakatos (1997, p.181) concluded: "It is the general experience that enterprises sell their holiday homes only when they are in extreme difficulties." I gained the impression from interview partners that selling holiday facilities would be a certain way to create demotivation and industrial unrest unless the situation was so bad that "employees had to accept that we have to sell our silver in order to survive"[20]. In addition, although holidays are usually accessible to all, they tend to be disproportionately used by better-off employees (managers), since companies only tend to provide a contribution rather than providing their holiday facilities free of charge. It should be noted that this is the only benefit requiring a physical infrastructure which has been kept by the two East German companies still providing some old-style benefits.

The category of *commodity benefits* includes, for example, presents, money towards school books and transportation but also on-site shops selling items at a reduced rate[21]. Presents are small bonuses in kind while the other benefits in this category are effective wage subsidies which, as in the case of food vouchers, incur tax advantages both for the employer and the employees because they are not subject to generally high social insurance and income taxes. The importance of the benefits seems to be declining with only 63% of companies using them in 1997. Since economic theory suggests that outright wage increases would be preferred by employees I would expect a decline in commodity benefits as inflationary pressures subside and as the tax rules which made their provision advantageous change.

*Community benefits* such as sporting facilities, libraries and cultural clubs are again an area where no company has scrapped its pre-existing facilities, although only 63% of companies provided such facilities in the first place. The finding of stability in this area is in contradiction with suggestions made by other authors that enterprises are showing a tendency to divest themselves of these facilities [Rein, Friedman & Wörgötter (1997, p.7)]. This is possibly the area where it is hardest to give an economic rationale for a continued provision of such facilities by enterprises and where a wider analytical approach is warranted which takes into account a given enterprises' role and 'embeddedness' in the local community and economy.

[20] Expression used by the TUR in H6.
[21] For example, employees of H2 can purchase H2's products at a reduced rate in an on-site shop.

*Housing benefits* have generally been restructured, with companies selling their apartments and closing the dormitories which used to house (now sacked) migrant rural workers. Low interest loans for housebuyers and -builders, aimed mainly at better-off employees in managerial and administrative ranks, still enjoy great popularity and are provided by 72% of companies. This overall trend has also been found by Rein & Friedman (1997, p.154), Fajth & Lakatos (1997, p.183). This is the clearest example where social services are restructured in such a way that they prime objective is no longer redistributional, but rather they are aimed at attracting and keeping the 'right' type of workers.

- *Variables capturing qualitative changes in social service provision:*

Simply counting of the number of benefits provided does not give us important information concerning changes in their extent and in the organisation of their provision. For this reason I introduced three state variables to capture a) whether the real value of the overall social services provided by the company has at least stayed constant, b) whether it has increased and c) whether the provision of the remaining social services has been re-organised, by, for example, shifting from and an internal canteen to giving employees food-tokens of equivalent value. Table 3b shows that 72% of companies in the Hungarian data maintained the real value of their social services and 27% even increased it. Only 27% of companies reorganised the provision of their remaining services.

3.2 'Explanatory' variables relating to the companies' size and performance

- *Variables capturing the size, that is number of employees, of a company in 1990 and 1996/7* [Hypothesis 1]: In the East German companies the mean number of employees fell from 4150 to 577, while in Hungary there was a much smaller decline from 4430 to 3173.

- *Variables capturing the domestic market share of a company in 1990 and in 1996/7* [Hypothesis 2, Hypothesis 4]: There have been radical changes in the market share[22] of the East German companies: a fall from a mean value of 89% in 1990 to only 15.5% in 1996. It should be noted that only has the share of the domestic market decreased, but frequently the size of the domestic market itself has shrunk rapidly. Many East German companies are obtaining a smaller slice in a smaller domestic pie, making it a matter of survival to achieve high sales outside East Germany. Hungarian companies have benefited from much more stable demand patterns and fewer new entrants[23]. From the starting point of a relatively less monopolised overall industrial structure the Hungarian companies market share only fell from a mean value of 60% to 56% between 1990 and 1997.

- *Dummies to capture whether the company is profitable in 1995, 1996 or 1997* [Hypothesis 3]: In 1995 44% of the companies in my East German data were

[22] The market referred to is East Germany.

[23] Hungarian companies are not only at times still protected by some remaining trade barriers but, more importantly, their very low wage costs and relatively high quality standards, idiosyncratic domestic demand characteristics as well as high transportation costs can deter foreign entrants in many sectors.

profitable rising to 77% in 1997. In 1996 54% of the Hungarian companies were profitable and all expected to at least break even by 1999.

- *The percentage of total output sold in world-wide and EU markets* [Hypothesis 5]: In 1996 the East German companies tended to sell about 33% of their total output in these markets, while the mean for the Hungarian companies was only 20%.

- *The percentage of original employees shed and the percentage of employees made unemployed* have been included as further indicators of restructuring in the enterprise. I find that the East German companies tended to shed about 76% of their workforce, making 54% directly unemployed. The mean values for Hungary are 57% and 38%. Employees who were shed but not made directly unemployed either went into state-run employment programmes (Germany) or are employed by separated out non-core units which are now operating as independent companies. It should be noted that these shedding figures are well in excess of estimates [Estrin (1994, p.15)] to the effect that labour hoarding before 1990 might have amounted to about 25% of the workforce.

## 3.3 Variables capturing the role of foreign direct investors, insider power and different management styles

- *A dummy to capture whether the company has a foreign direct investor or not* [Hypothesis 6][24]: In the East German data 77% of companies had foreign, including West German, investors in 1996. The two companies which at this time did not fall into this category were both up for re-sale after failed privatisations. The privatisation of D6 failed because the investor ended up asset stripping until the company's board intervened and initiated a re-purchase by the Treuhand. When I called in 1998, D6 had been re-privatised to a UK company. The case of D7 is very unusual in that this is a company which is very successful in spite of its investor who went bankrupt. D7 was the only company in a large conglomerate which did not go down with its Austrian investor. It is currently up for resale but I gained the impression that it is not particularly keen on being sold.

  In Hungary the picture is more varied. 63% of the companies visited have a foreign direct investor, H5 and H11 have floated on the Budapest stock exchange after prolonged government involvement (some would say interference), H6 has been going from one crisis and government intervention to the next and H8 has an institutional investor who does not interfere in the day-to-day running of the company.

[24] One could include dummies which try to capture the influence on decision-making that the foreign direct investor has. If dummies are included asking the local management whether the investor was the main force in the restructuring of the product range or the main force in managerial training, then for the questions at hand one obtains results which are very similar to those in the FDI columns.

- [Hypotheses 7 and 8:] Lastly I have included two dummies which are aimed at examining the issue of *insider power* and to capture the extent to which *ethical and social values derived from the past* influence restructuring in the company.

The first dummy captures whether the trade union co-operated in the restructuring process of the company[25] and the second whether the management is deemed to be and thinks of itself as 'socially responsible' or, to use the Hungarian expression, 'humane'. These variables warrant some explanation, especially since they are likely to effect not only the restructuring of social services but the restructuring process in general. They not only relate to the notion of insider power, but also the notion of the social embeddedness of economic activity[26]. Case study evidence is particularly useful in illustrating the rationale behind the persistence of attitudes and social norms for the provision of social services.

Interview partners frequently used the terms 'socially responsible' (Germany) and 'humane'(Hungary) [27] in order to describe a managerial approach to restructuring which takes into account how restructuring decisions are going to affect employees and which tries to cushion the adverse social effects this restructuring process entails. Put differently, 'socially responsible' managers placed themselves into their employees' shoes when making decisions and took their needs and worries into

[25] Unionisation rates are only obtainable for Hungarian companies. When these were included in the analysis they proved entirely insignificant. A similar finding was made by Estrin, Schaffer & Singh (1997, p.46).
[26] See Granovetter (1985) for a central chapter on this topic.
[27] The Hungarian expression locates the origins of 'humane' behaviour in 'recognising the other persons' humanity', while the German phrase locates the origins of this type of attitude in 'recognising the social responsibility entailed by a position of power'.

consideration. It is for this reason that 'socially responsible' is an indication of the 'power' of employees to influence decision-making: their concerns are being heard and taken into account.

55%[28] of the German[29] and 45% of the Hungarian companies[30] examined explicitly refer to such considerations. Measures which are considered to be humane or socially responsible include an extensive use of early retirement, providing employees with re-training and help in finding new jobs, making an effort not to sack all the members of a family employed by the company, paying redundancy payments which are higher than the legally required minimum and generally treating employees as individuals rather than faceless numbers. A socially responsible management will also have a predisposition towards separating out rather than liquidating non-core units in order to limit the unemployment impact of restructuring. It is also generally implied that a humane management involves employees and their representatives in designing the details of restructuring and stick to agreements once they are made. I asked both the personnel manager and trade union representative to explain the reasons for managers endorsing a 'humane' or 'socially responsible' approach to restructuring. Their answers can be grouped under the following headings:

- a humane approach *maintains the motivation of the remaining workforce* by reducing the employees' fears concerning their future[31]
- the desire to keep *social peace in the company[32] and its wider community*

[28] The percentages referred to in this section are all derived from the means of the D(H)socres and D(H)coop variables.
[29] D1, D2, D4, D7, D9
[30] H1, H2, H4, H5, H7
[31] H4 and H5

- *the philosophy of the investor*[33]*/ of the Treuhand representative*[34]
- *empathy with the employees being made redundant* and *personal ethical motives*[35]

Since in Hungary maintaining the internal provision of social services is frequently associated with a humane management, it should not be surprising that the reasons for maintaining social services are very similar to those given in favour of a humane approach to restructuring in general.

In 61% of the East German companies and 54% of the Hungarian ones the trade union co-operated in the restructuring process. These high percentages confirm an early finding obtained by Svejnar (1991, p.128) who stated that trade unions "have generally co-operated with (or at least tolerated) the transition process." Co-operation by the unions consists in:

- *Loyalty to the company: keeping back with their wage and non-wage demands*[36]
- *refraining from strikes* and strike threats[37]

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[32] D9, D2, H1, H2 and, after the clash between the employees and the investor in 1992, H7

[33] H1, H2, H4 and D1

[34] D9. It should be noted that Hungarian companies who had a choice (e.g. H4) very consciously sought out investors who were perceived to have a "European" (that is humane) rather than an "Anglo-Saxon" approach to redundancies. The trade union representative stated that "an American investor would have lead to a strong cultural mismatch."

[35] H5, D4, D1. The personal need and ability on the side of decision makers to consider the fate of employees facing redundancy is generally a result of interpersonal relationships which have evolved over a long time in the previous economic system where jobs for life were the norm and labour turnover in companies was low. Similar sentiments were reported by Major & Voszka (1995) in study conducted in 1995 for the ÁPV Rt. on the fate of the 49 large companies which had been given special emphasis in the old economic system.

[36] H1, H3, H4, D1, D4, D7, D8, D9

[37] H4, H5, H8. A strike only occurred in company H6, while threats of strikes are more common (H4, H6, H7). In some instances strikes and their threat were a consequence of the union gaining the conviction that the investor or management is in the process of liquidating the company (H6, H7, H4)

- *providing employees with information* concerning re-training and job hunting opportunities and *encouraging employees to have a constructive input into workplace innovations*[38]
- In East Germany there are many examples of employees *working unpaid overtime* and doing further training on the week-ends[39].

Co-operation by the trade union is only sustained in the long run if the management is perceived to be sticking to its side of the deal. In East Germany the implicit contract[40] implies that the workers contribute all they can by restraining their demands concerning wages and the work load until the company is doing well enough to meet them while the management pays Tarif wages[41] and makes every effort not to have further redundancies. The basic idea that loyalty, restraint and co-operativeness by the union should be met by the management ensuring the company's long-run success and increasing wages and benefits in line with profits was also wide-spread in Hungary.[42] A management worth co-operating with is also expected to avoid 'unnecessary' redundancies[43], to communicate honestly about the company's situation and plans for the future[44] and to generally stick to agreements reached with the union.

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while in other instances strikes were threatened because the employees are renouncing agreements reached with the management previously (H6).

[38] D8, D9

[39] D1, D4, D7, D8, D9

[40] This was formulated explicitly by the trade union representatives in D1, D2 and D4.

[41] Tarif wages are wages which have been agreed upon through centralised bargaining but which lie above the average because very few East German companies honour them.

[42] H4, H6, H7, H8

[43] H5, H7, H8

[44] H7, H5

Co-operation by the trade union usually only breaks down when local managers or the investor renege on agreements made concerning investment or restructuring plans.[45] Such managerial behaviour is extremely damaging to industrial relations and in Germany usually results in employees resorting to the courts against the management while in Hungary strike threats and strike threats are more common. Both types of responses cause internal friction and wasting managerial time and effort.

## 4. Confronting the hypotheses

This section presents the statistical evidence obtained with respect to Hypotheses 1-9 in my data set. Tables 4a and 4b in the Appendix list the associations found. Table 5 summarises the main results obtained.

### 4.1 Confronting the hypothesis relating the number of benefits provided to company size

*HYPOTHESIS 1:*

- *positive association between firm size and number of benefits provided*

*Summary: Support in both the East German and Hungarian data*

In the East German data companies which were relatively large in terms of their employee numbers in 1990 tend to provide an above average number of benefits in

[45] Such incidences have happened in company H7, D2 (here the problem was solved by firing the managing director by the investor), D5, D6 and D3.

1996 [0.62, 5%][46]. Interestingly the company's current size is entirely insignificant, clearly indicating that it is historical factors which are important in explaining the persistence of benefits rather than the company's current number of employees.

In Hungary I also find support for Hypothesis 1. Companies which were relatively large in 1990 tended to provide numerous benefits already then [0.51, 10%] and continue to do so in 1997 [0.53, 5%]. In Hungary there has been a strong persistence of historical trends with respect to firm size [0.98, 1%] and with respect to the relative number of benefits provided [0.81, 1%]. Consequently I also find that companies which are large in 1997 behave similarly to and tend to be identical to the companies which were large in 1990. Furthermore I find that companies which have at least maintained the real value of their social services provided an above average number of benefits in 1990 [0.42, 10%] and do so in 1997 [0.56, 5%]. These observations support statistically the general picture of stability and only gradual change in the provision of social services found by other authors.[47]

Estrin, Schaffer & Singh (1997)[48] not only also find evidence for a significant size effect in social service provision (p.37) but they also suggest that larger Polish firms have experienced a greater decline than small firms (p.46). I find little evidence of such a relationship in East Germany or Hungary. In East Germany the relevant association is very close to zero, probably because the decline in social service

[46] The numbers in parentheses indicate the association found and its statistical significance. Statements along the lines of 'larger than average companies provide a larger than average number of benefits' are meant to indicate that in the case studies there is, for example, a significant positive association between company size and number of benefits provided.

[47] Almost all the contributions in Friedman & Wörgötter (1997) support this basic conclusion.

provision was so universal, with companies scrapping a greater number of services the more they had to start off with [-0.77, 1%]. In Hungary the negative association between a decline in the number of social services and the firm's size in 1990 is almost significant at the 10% level, suggesting, if anything, that historically larger companies have experienced smaller than average declines in the number of benefits provided. In contrast to East Germany, the Hungarian companies showed no universal decline in the number of benefits provided. Most companies have kept the level of provision constant and some companies have even increased the number of their benefits. This is reflected in the strong positive association between the current number of benefits and changes in benefit provision [0.72, 1%].[49]

*HYPOTHESIS 2:*

- *positive association between monopoly power (proxied by market share) and number of benefits provided*

In East Germany all the companies have suffered such large losses in their market share and such intense competition that the idea that they might have retained any degree of monopoly power is highly unrealistic. Accordingly all associations which might be relevant to Hypothesis 2 are insignificant. In Hungary on the other hand I find a strong relationship between market share and the number of social services provided for both 1990 and 1997 [0.72,0.70, 1%]. The interpretation of this finding is

[48] Commander & Schankerman (1997) find the same basic size effect for both Russia and the Ukraine.
[49] My finding is similar to that made by Commander & Schankerman (1997, p.7) who find that in their Russian data set larger firms were actually less likely to reduce the number of benefits.

not, however, straightforward. This will be discussed in greater detail with reference to Hypothesis 4.

4.2 Hypotheses relating the number of benefits provided to performance

*HYPOTHESIS 3:*

- *negative association between profits and number of benefits provided*

*Summary: I find weak support in the East German data and the opposite trend in Hungary.*

In East Germany there is some evidence that, as the literature suggests, the efficiency implications of abandoning social service provision are favourable: Companies with a good export performance and hence high international competitiveness have shed a relatively high number of benefits [-0.68, 5%]. Furthermore companies who are not profitable in 1995 are more likely to have maintained some social services [-0.50, 10%][50], although it is not a priori clear whether the social services are dragging their profitability down or whether benefits are being kept as a compensation for lower wages in these companies.

[50] At least in part the association above is likely to be reflecting omitted third variables. For example I find that companies which provided a large number of social services in 1990 were also less likely to have a socially responsible management [-0.53, 10%] and more likely to shed a large percentage of their employees [0.66, 5%]. Both these factors are associated with a lower probability of being profitable, so that the impression emerges that a higher level of social benefit provision in 1990 is associated with greater overall restructuring challenges and for this reason with lower profitability in 1995. This interpretation is supported by the fact that in 1995 companies which, usually from a relatively high starting point, shed a large number of social services are less likely than average to be profitable [0.54, 10%]. By 1997 both these effects become insignificant, suggesting that although these

In Hungary there is absolutely no support for Hypothesis 3. I find that the profit dummy is insignificant with respect to all the benefit variables, suggesting that there is no evidence that companies which provide a greater number of benefits than others are less profitable than average. What is more, I find that companies which have kept the real value of their social services at least constant are more likely than average to be profitable [0.67, 5%]. Only case study evidence can, however, shed light on the causality involved, that is on whether companies maintain their services because they can afford to do so, or whether they are profitable because of the positive effects of social service provision.[51]

*HYPOTHESIS 4:*

- *negative association between market share (as an indication of a company's competitiveness) and number of benefits provided*

*Summary: In Hungary there is a strong positive relationship between market share and social service provision, but it is unclear whether continued social service provision is a consequence of an insufficient pressure to restructure or whether internal provision has positive net efficiency effects, giving these companies a competitive advantage.*

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companies might have faced a greater restructuring challenge initially they now have the same likelihood of being profitable than others.

[51] Commander & Schankerman (1997) too find a positive relationship between profitability and the number of benefits provided in Russian firms but they do not explore the causality involved.

Hypotheses 2 and 4 try to disentangle the effect market share is likely to have on restructuring. In doing so I am plagued by an age-old problem: Does a high market share indicate monopoly power and hence an insufficient incentive to restructure (Hypotheses 2) or superior efficiency (Hypotheses 4)? In the East German data this problem is resolved by the fact that no company has sufficient market share for the monopoly power hypothesis to bear any relationship to reality whatsoever and all the associations pertaining to Hypotheses 2 and 4 are insignificant.

In Hungary on the other hand I not only find a strong relationship between market share and the number of social services provided for both 1990 and 1997 [0.72,0.70, 1%] [52] but my data even provides a weak indication that companies which have a high market share in 1997 have tended to either keep their benefits constant or to even increase them [0.44, 10%]. There is no obvious way of deciding whether these social services constitute a form of rent dispersion by companies with monopoly power, or whether highly efficient companies maintain them because their net efficiency implications are positive. The fact that a higher market share is associated with higher profits in both 1990 [0.49, 10%] and 1997 [0.48, 10%] is consistent with both the monopoly power and efficiency interpretation of a high market share.

[52] In both years companies with a high market share tended to be also large in terms of employee numbers [0.48,0.49, 10%] Since there is a significant persistence of historical trends, this time with

HYPOTHESIS 5:

- *negative association between export performance and number of benefits provided*

*Summary: I find weak support in the East German data and the opposite trend in Hungary.*

In the East German data I find no significant associations which might shed light on Hypothesis 5, except that companies which have shed a large number of benefits have also achieved high exports in 1996 [-0.68, 5%], suggesting that shedding benefits might have been efficiency improving for these companies.

In Hungary the picture is again radically different. The overall impression is that maintaining social services constitutes some form of competitive advantage in Hungary: Not only are these companies more likely to be profitable, but companies which provide an above average number of benefits in 1997 also tend to have a good export performance [0.43, 10%]. What is more, I find than companies which have high exports tend to also have shed fewer than average employees [-0.64, 5%], made a smaller proportion of their employees unemployed [-0.54, 5%], are larger than average both in 1990 [0.84, 1%] and 1997 [0.61, 5%] and tend to have a humane management [0.48, 10%]. They exhibit all the signs of 'insufficient restructuring', 'continued adherence to historically accepted norms' and an 'excessive size'. They

respect to market share [0.89, 1%], I find that for any given company the situation looks very similar in 1990 and 1997.

seem to be doing very well by doing the opposite of what the literature suggests they should be doing.

## 2.3 Hypotheses relating to management style, that is to the role of insiders and foreign direct investors

*HYPOTHESIS 6:*

- *a negative association between FDI and the number of social services provided*

*Summary: Strong for this hypothesis in the East German data, no such trend in Hungary.*

As Hypothesis 6 suggests, in East Germany the arrival of a powerful outsider in the form of a foreign direct investor is strongly negatively associated with continued social service provision [-0.93, 1%]. The finding that in Hungary companies with FDI are no more likely to scrap social services than those without is rather perplexing in this context [53], especially since one can expect foreign direct investors to have initially exactly the same attitudes as they would in East Germany. What exactly happens in the interactions between investors and the local workforce is best resolved by case study evidence.

[53] I am not the first to have a data set suggesting this conclusion, but Carlin, Van Reenen and Wolfe (1995) do not explicitly discuss the rather intriguing implication of their Table 4 (p.449) that only one Hungarian company with FDI has shed its social assets and no Polish or Check company with FDI has done so.

*HYPOTHESIS 7:*

- *a positive association between insider power and the number of benefits provided*

*HYPOTHESIS 8:*

- *local managers who, deriving from the previous economic order, have a moral conviction that they have a 'social responsibility' are less likely to shed both superfluous employees and the internal provision of social services*

*Summary: I find the associations suggested by Hypotheses 7 and 8, but in both East Germany and Hungary the efficiency implications of restructuring measures based on notions of social responsibility are entirely unexpected.*

When delving more deeply into the issues surrounding 'insider power' and 'historically accepted norms' my data hold some more surprises. The expectation that a management ascribing to historically accepted norms which effectively make them highly aware of the enterprises' social embeddedness generates the associations suggested by Hypotheses 7 and 8. Indeed I find that a humane management sheds fewer than average employees[-0.53, 5%], tends to provide a relatively high number of benefits in 1990 [0.67 and respectively, 5%] and in 1997 [0.84, 1% and 0.67, 5% respectively] and keeps the real value of social services at least constant [0.52, 5%][54].

[54] Keeping the real value of social services constant is in turn associated with lower labour shedding and unemployment figures in the company [-0.46 and -0.44 respectively, 10%].
Due to the almost universal scrapping of social services in East Germany no such observations can be made for that data set, but it should be borne in mind that there is some anecdotal evidence (e.g. in D4) of socially responsible managers scrapping socially services with 'sweeteners' such as an improved canteen and working environment.

In East Germany socially responsible managers make fewer than average employees unemployed [-0.76, 1%].[55]

What is not borne out, however, is the expectation that such 'insufficient' labour and social service shedding as a consequence of humane attitudes is going to have negative profitability implications for the company. On the contrary, by 1996/7 these companies are more likely to be profitable both in East Germany and Hungary [0.60 and 0.47 respectively, 10%].

The crucially missing link is that humane managers and socially responsible managers tend to be rewarded by a co-operative trade union [0.71, 5% and 0.83, 1% respectively], which the case study evidence suggests can greatly facilitate overall restructuring. By 1997 German companies with a co-operative trade union are very likely to be profitable [0.71, 5%] while Hungarian companies with a co-operative trade union are likely to have a higher than average market share in 1990 [0.71, 1%] and 1997 [0.670, 5%] as well as an above average export performance [0.49, 10%]. Far from keeping companies from adapting effectively to their changing environment and restructuring, some of the historically accepted norms seem to be actually conducive to efficiency enhancing behaviour.

The reduced labour shedding I observe in companies with a humane management can be an indication of two things: firstly of insufficient restructuring on the labour side or secondly of the fact that the company is doing well and has enough orders to continue

[55] The spirit of these findings is in accord with Clark & Soulsby (1998).

to employ a relatively high proportion of its original workforce. The second interpretation finds support in the fact that high labour shedding and unemployment figures are both associated with lower probability of being profitable in 1996 [-0.57 and -0.59 respectively, 5%]. It seems that companies with high labour shedding rates are not shedding labour because they are restructuring their workforce especially effectively but because they have below average business prospects.[56]

## 2. 4 Hypotheses relating to a comparison between developments in East Germany and Hungary

*HYPOTHESIS 9:*

- *Both East German and Hungarian companies should show an unambiguous trend towards shedding the internal provision of social services.*

*Summary: The differences in trends are significant. With respect to the provision of social services formerly state owned Hungarian companies seem to have tended to chose a different restructuring altogether.*

It is quite clear that my data provides no support whatsoever for shared trends between East Germany and Hungary. The assumption that the Hungarian and East German observations were generated by the same underlying process, that is that they come from a homogenous population, can be rejected at least at the 10% level for all

[56] Although the association between size in 1997 and profitability is only significant at the 15% level, I also find that companies which are large in 1997 are so because they have shed less than average labour and made fewer employees unemployed [-0.53 and -0.58 respectively, 5%]. In accordance with this finding large companies are also associated with a co-operative trade union both in 1990 and in 1997 [0.58, 5% in both cases].

benefit related variables, the market share variables, the export variable, the labour shedding variable as well as the variable capturing the enterprises' size in 1996/7.[57] Although previously state owned East German and Hungarian companies started at historically similar starting points, they have embarked on very different trajectories with respect to the internal provision of social services and the Hungarian companies are showing no signs of catching the German trend after some delay.

## 5. Conclusions

The economic literature on enterprise restructuring strongly suggests that maintaining the internal provision of social services complicates the general restructuring process and reduces per capita productivity. Insider power and historically accepted norms concerning the management's social responsibility are usually cited as the main reasons for delaying crucial efficiency-enhancing restructuring. The general expectation is, however, that once the general transition process gains momentum and companies are sufficiently subject to market pressures, the insiders and their now outdated norms will have to give way. Consequently it can be only a question of time until the shedding of social services will take place in all transition economies.

Although the East German data provides weak support for some of these contentions, surprisingly few of these expectations find empirical support in the Hungarian context.

[57] In this instance I am effectively examining whether the Hungarian and East German data could be pooled. In the case of two dummies the appropriate test is a chi-square test of independence and in the

There is strong evidence that companies which maintain their internal social service provision and shed less employees actually outperform other companies. This outperformance can be measured in terms of profits, domestic market share and exports. The surprising fact that Hungarian companies with FDI show just as strong a persistence in social service provision as those run by local managers and that several investors explicitly endorse a humane restructuring philosophy suggests that we have to search for explanations other than the persistence of insider power and outdated norms.

The differential behaviour of investors in the Hungarian and East German companies was generally not due to different initial restructuring approaches. In Hungary investors tend to arrive with preconceived ideas and a desire to more or less transplant structures and practices which work well or are commonly accepted in the West. They tend to realise soon that they have not acquired a clean slate but a company with its own traditions and culture which are ignored at the cost of demotivating the workforce, generating industrial unrest or at least apathy, creating distrust in the local management as well as a general lack of communication and co-operation. Since all of this is not conducive to an acquisition's success, investors tend to accept after some initial clashes that they have to work with these traditions rather than against them. In this context maintaining the internal provision of social services is a highly symbolic and effective gesture. By recognising the historically grown social role of the enterprise an investor signals that he is humane and worth co-operating with.

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case of two continuous variables a t-test for differences of means was used.

In East Germany the situation was different: In the process of reunification East Germany became fully integrated into the West German system of social benefit provision. Since East German companies generally needed to find an investor very quickly in order to survive, shedding all forms of traditional social services had to be accepted as one price one paid for having an investor. This shedding was all the easier to accept than in Hungary since East German employees were anticipating wage increases and the fast emergence alternative sources of social service provision. Nevertheless there were investors who were keen to signal that they were socially responsible in their attitudes to general restructuring, even if this did not include preserving the provision of social services: These investors tended to abolish services with 'sweeteners' such as upgraded canteens, changing areas and a generally improved working environment.

I find that historically determined attitudes towards restructuring have been adopted by some investors and, far from being an atavism, have surprisingly strong positive efficiency implications in terms of the companies' overall performance. Even in East Germany, where companies have been subject to very strong transition pressures, this unexpected relationship holds. My data suggests a reason for this which goes beyond the effects of social service provision on the individual worker's productivity and which has commonly been overlooked: Companies which ascribe to historically accepted norms tend to benefit form a highly co-operative trade union and workforce,

a factor which greatly enhances their ability to meet the challenges posed by transition.[58]

I find little support for the hypotheses relating social service provision and management styles to company performance. The hypotheses relating social service provision to company size fare better. Both in East Germany and Hungary there is strong evidence that larger companies do indeed provide an above number of benefits. What is somewhat unexpected are the efficiency implications of staying large: large Hungarian companies again tend to exhibit 'insufficient' social service and labour shedding, but they also have an above average market share and export performance.

The fact that seven years into transition I find few companies who are perturbed by the persistence of internal social service provision and none who want to shed rather than fine-tune their services suggests that it is not simply a question of time until Hungarian companies follow East German trends and shed their social services. Hungarian companies seem to have chosen a long-run position characterised by continuing social service provision. It is not that Hungarian companies are laggards in restructuring social service provision, it is that they have chosen a different

[58] I am not the first to suggest that maintaining social benefits might have efficiency enhancing effects by improving individual employees' productivity. Those suggested by, for example, Rein, Friedman & Wörgötter (1997) are that social services attract the desired kind of worker, increase the loyalty of existing workers and enhance productivity. Similarly to Aghion, Blanchard & Burgess (1994) they also suggest, however, that on the downside maintaining social service provision might complicate restructuring. The reasons given in my studies for maintaining the internal provision of social services support the hypothesis that social benefit provision increases productivity by improving loyalty, morale and work motivation of the remaining workforce. The handling of housing subsidies also suggests that some benefits are being restructured in such a way as to attract scarce middle-ranking and managerial employees. What is unusual is my finding that maintaining social services, which is a clear symptom of a humane management, not only improves the productivity of individual workers but also induces co-operation in the trade union which facilitates the whole process of overall restructuring.

restructuring path. Instead of admonishing Hungarian companies for their lack of restructuring we should turn our attention to examining the efficiency rationale behind the choices they have made.

My conclusions have indicate that much of the literature on enterprise restructuring has failed to adequately capture developments in Hungary. In particular my results call for a re-examination of the efficiency implications of managers being guided by social considerations in designing and implementing restructuring measures. Such a re-examination is all the more pertinent because empirical evidence for the persistence of social service provision and of 'socially responsible' attitudes is mounting also for transition countries other than Hungary[59]. The importance of restructuring wage and non-wage costs has to be put into relationship with the other, more pressing, transition challenges a company faces, such as the challenge of finding a new market niche in a market that is frequently rapidly changing both on the demand and supply side, the restructuring of its product range and supplier networks, the upgrading of its technology and the need to find new marketing and sales channels, to name just a few. There are strands of literature which suggest that the importance of wage costs has been greatly overestimated in this context, as has been the contribution internally provided social services make to a company's total wage costs[60].

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[59] See, for example, Clark & Soulsby (1998) for the Czech Republic, Commander & Schankerman (1997) for Russia and the Ukraine, Estrin et al (1997) for Poland.

[60] Amsden et al (1994, p.81ff) emphasise, for example, that wages are estimated to constitute only 15 to 25 percent of total costs in Eastern European companies. Schaffer (1995) suggests that the internal provision of social services is not a very pressing policy issue because the costs incurred are comparable to non-wage compensation in Western firms. He argues that differences between Eastern and Western firms relate to the ownership of the assets used for provision and the types of benefits on

It is important to note that my findings were made in a context where environmental pressures are so strong that both managers and employees cannot ignore the need engage in overall restructuring. In such a context a socially responsible management with progressive ideas concerning which overall direction the company should take is much better able to lead a company with a co-operative trade union than a management which excels at shedding employees and social services, but induces low productivity, demotivation, disillusionment and unrest in the process.

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offer, but not to the cost of provision itself. Rein, Friedman & Wörgötter (1997) suggest that enterprise benefits exclusive of social protection, which is what enterprise benefits in the East should be compared with, amounted to 9.9% of total labour costs in the US. With this figure in mind Fajt & Lakatos (1997) estimate that the percentage of social services in labour costs is 14% in Hungary, while Rein & Friedman (1997) put this figure at 10%. Against the argument that companies cannot be *efficiently* involved in the provision of social services stand suggestions that the economies of scale involved in these social services might be relatively small [Schaffer (1995)] and that competition between firms in their provision might lead to efficiency improvements [Jackman (1995)]. On these accounts the whole debate surrounding the importance extensive of labour and social service shedding is somewhat irrelevant. This contention is strongly supported by my case studies. Many Hungarian companies suggested that although there is room for increases in productivity, their total wage costs are so low that they constitute a competitive advantage, rather than a major worry. Interview partners also estimated that wages would reach Western levels in about 10 years time, but no-one seemed particularly worried about this prospect. Worries about collapsed Russian markets, insufficient funds to obtain the newest production technology etc. were a lot more common than those related to wage costs.

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# Data Appendix

## Table 1
## List of variables summarising the data on the internal provision of social services

| | |
|---|---|
| **D(H)FDI** | 1 if the company has a foreign direct investor, 0 otherwise |
| **D(H)COOP** | 1 if the union co-operated in restructuring, 0 otherwise |
| **D(H)SOCRES** | 1 if the company explicitly endorsed a socially responsible approach to labour shedding, 0 otherwise |
| **D(H)LEAVING** | The percentage of employees leaving the company (1990=100%) |
| **D(H)UNEMP** | The percentage of employees (1990= 100%) becoming unemployed |
| **D(H)SOCIAL** | 1 if the level of social services in the company has stayed constant in real terms, 0 otherwise |
| **DPROFIT95** | 1 if the company was profitable in 1995, 0 otherwise |
| **DPROFIT97** | 1 if the company was profitable in 1997, 0 otherwise |
| **HPROFIT96** | 1 if the company was profitable in 1996, 0 otherwise[1] |
| **D(H)SIZE90** | number of employees in 1990 |
| **D(H)SIZE96(97)** | number of employees in 1996/7 |
| **D(H)BENNUM90** | number of internally provided social services in 1990 |
| **D(H)BENNUM96 (97)** | number of internally provided social services in 1996/7 |
| **D(H)DELBEN** | change in the number of benefits provided: D(H)BENNUM96/7 minus D(H)BENNUM90 |
| **HSOCIALINC** | 1 if in 1997 the level of social services has increased in real terms in the company, no East German company falls in this category |
| **HSOCCONST** | 1 if in 1997 the level of social services has at least stayed constant in real terms in the company, no East German company falls in this category |
| **HSOCREORG** | 1 if the delivery of the social services which the company continues to provide has been reorganised by 1997, no East German company falls in this category |
| **D(H)MS90** | market share of the East German (Hungarian) market in 1990 |
| **D(H)MS96(97)** | market share of the East German (Hungarian) market in 1996/7 |
| **D(H)EXPORT96 (97)** | proportion of output exported world-wide or to the European Union in 1996/7 |

[1] In 1997, when the Hungarian interviews were conducted, this was the latest available profit figure. The German profit figure for 1995 was obtained in the interviews conducted in 1996 and the one for 1997 was obtained in follow-up calls which were made in 1998 in order to update the East German data.

## Table 2: List of the social services provided in 1990 and 1996/7

| | Food | | Childcare | | Medical | | Holiday | | Commodity | | Housing | | Community | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 90 | 96/7 | 90 | 96/7 | 90 | 96/7 | 90 | 96/7 | 90 | 96/7 | 90 | 96/7[i] | 90 | 96/7 |
| D1 | 0 | 0 | 0 | 0 | 0 | 0 | 1[ii] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| D2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| D3 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| D4 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| D5 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| D6 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| D7 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| D8 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| D9 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| H1 | 1 | 1[iii] | 1 | 1[iv] | 1 | 1 | 1 | 1 | 1 | 1[v] | 1 | 1 | 0 | 0 |
| H2 | 1 | 1 | 1 | 1[vi] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1[vii] | 1 | 1 |
| H3 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| H4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| H5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| H6[viii] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| H7 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| H8 | 0 | 1[ix] | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| H9 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1[x] | 1 | 0 | 0 | 0 | 0 | 0 |
| H10 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1[xi] | 1 | 1 | 0 | 0 |
| H11[xii] | 1 | 1* | 1 | 1* | 1 | 1* | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| %D[xiii] | 55 | 33 | 66 | 0 | 66 | 0 | 88 | 22 | 55 | 22 | 11 | 0 | 55 | 22 |
| %H | 90 | 81 | 72 | 63 | 81 | 81 | 100 | 100 | 81 | 63 | 81 | 72 | 63 | 63 |

[i] Typically companies have closed their old dormitories and sold apartments they owned. What is not uncommon in 1997 is to give low interest loans to employees buying or building a house.

[ii] Employees of D1 had access to holiday facilities via their trade union.
[iii] The internal canteen have been replaced by food tokens which are more of s symbolic nature.
[iv] The kindergarten has been given to the local government but maintains close links with H1 and is still fully operative.
[v] H1 still gives Christmas and Easter presents, as well as money towards school books and transportation.
[vi] The kindergarten has been given to the local government but maintains close links with H2
[vii] H2 is currently trying to sell the apartments it owns.
[viii] This company has scrapped no benefits but has reduced the extent of all of them.
[ix] H8 has actually built anew on-site canteen.
[x] Employees of H9 have access to their trade union's holiday camp.
[xi] Employees now only receive work clothes from H10.
[xii] H11 has extensively reorganised the provision of social services while maintaining their real value. The company has kept its holiday camp, arts' centres and hotels and has opened them up to outsiders. The PM claims that providing these benefits in kind to the employees rather than paying them higher wages to enable them to purchase them leads to tax savings on both the employees' and the employers side. However the company no longer provides medical services, childcare etc. Instead employees all get an equal per capital budget in the form of *vouchers* which they can use to purchase these service in the free market. The PM justifies this new arrangement that providing social services is not the task of the company in the first place. Apparently the workforce, after initial reluctance, now like this new system because it is *viewed as "fairer and it gives them more choice"* (PM) The TUR points out that the budget for social service provision in the company is 5 billion HUF. The TUR would like to see an extension and fine-tuning of the voucher system. It should be noted that this extensive reorganisation in the provision of social benefits took place while the company was still predominantly state owned. Starred entries stand for services which are now provided in voucher form.
[xiii] Percentage of German companies providing this service in 1990/ 1996.

## Table 3a: East German data on the internal provisision of social services

| | Dfdi | Dcoop | Dsocres | Dleaving | Dunemp | Dprofit 95 | Dprofit 97 | Dsize 90 | Dsize 96 | Dbennum 90 | Dbennu m96 | Ddel ben | Dms90 | Dms96 | Dexport 96 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | 1 | 1 | 1 | 70 | 45 | 1 | 1 | 2000 | 600 | 1 | 0 | -1 | 100 | 3 | 0 |
| **D2** | 1 | 0.5 | 1 | 25 | 25 | 1 | 1 | 330 | 248 | 1 | 0 | -1 | 100 | 10 | 0 |
| **D3** | 1 | 0 | 0 | 87 | 77 | 0 | 0 | 2021 | 270 | 5 | 1 | -4 | 95 | 20 | 75 |
| **D4** | 1 | 1 | 1 | 92 | 60 | 0 | 1 | 9500 | 722 | 5 | 1 | -4 | 100 | 20 | 75 |
| **D5** | 1 | 0 | 0 | 62 | 57 | 1 | 1 | 2700 | 1033 | 6 | 1 | -5 | 10 | 2.6 | 15 |
| **D6** | 0 | 0 | 0 | 95 | 95 | 0 | 0 | 6500 | 320 | 5 | 3 | -2 | 100 | 7.5 | 7 |
| **D7** | 0 | 1 | 1 | 88 | 28 | 1 | 1 | 6800 | 800 | 5 | 3 | -2 | 100 | 4 | 0 |
| **D8** | 1 | 1 | 0 | 89 | 59 | 0 | 1 | 4500 | 500 | 5 | 0 | -5 | 100 | 72.5 | 30 |
| **D9** | 1 | 1 | 1 | 78 | 40 | 0 | 1 | 3000 | 700 | 5 | 0 | -5 | 100 | 0 | 95 |
| | | | | | | | | | | | | | | | |
| **mean** | 0.77 | 0.61 | 0.55 | 76 | 54 | 0.44 | 0.77 | 4150 | 577 | 4.2 | 1 | -3.2 | 89 | 15.5 | 33 |

## Table 3b: Hungarian data on the internal provisision of social services

| | Hfdi | Hcoop | Hsocres | Hleaving | Hunemp | Hprofit 96 | Hsize 90 | Hsize 97[i] | Hbennum 90 | Hbennum 97 | Hdel ben | Hsoc inc | Hsoc const | Hsoc reorg | Hms90 | Hms97 | Hexport 97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **H1** | 1 | 1 | 1 | 70 | 60 | 1 | 2100 | 640 | 6 | 6 | 0 | 0 | 1 | 0 | 100 | 100 | 0 |
| **H2** | 1 | 1 | 1 | 52 | 52 | 0 | 2400 | 1396 | 7 | 7 | 0 | 1 | 1 | 1 | 90 | 80 | 0 |
| **H3** | 1 | 0 | 0 | 76 | 50 | 0 | 3400 | 800 | 6 | 5 | -1 | 0 | 1 | 1 | 5 | 10 | 10 |
| **H4** | 1 | 1 | 1 | 56 | 49 | 1 | 4500 | 2750 | 7 | 7 | 0 | 1 | 1 | 0 | 75 | 25 | 38 |
| **H5a** | 0 | 1 | 1 | 30 | 0 | 1 | 5000 | 5100 | 7 | 7 | 0 | 0 | 1 | 0 | 78 | 78 | 42 |
| **H6** | 0 | 1 | 0 | 70 | 29 | 0 | 10500 | 7800 | 7 | 7 | 0 | 0 | 0 | 0 | 98 | 90 | 20 |
| **H7** | 1 | 1 | 1 | 30 | 14 | 1 | 14297 | 11952 | 6 | 6 | 0 | 0 | 1 | 0 | 78 | 85 | 87 |
| **H8** | 0 | 0 | 0 | 42 | 2 | 1 | 1000 | 940 | 3 | 4 | 1 | 1 | 1 | 0 | 45 | 60 | 6 |
| **H9** | 1 | 0 | 0 | 78 | 78 | 0 | 450 | 100 | 3 | 1 | -2 | 0 | 0 | 0 | 5 | 3 | 0 |
| **H10** | 1 | 0 | 0 | 60 | 60 | 0 | 650 | 250 | 4 | 1 | -3 | 0 | 0 | 0 | 25 | 5 | 0 |
| **H11** | 0 | 0 | 0 | 64 | 21 | 1 | 40000 | 14500 | 7 | 4 | -3 | 0 | 1 | 1 | 100 | 85 | 15 |
| | | | | | | | | | | | | | | | | | |
| **mean** | 0.63 | 0.54 | 0.45 | 57.1 | 37.7 | 0.54 | 4430 excl.H11<br>7663 incl.H11 | 3173 excl.H11<br>4203 incl.H11 | 5.72 | 5 | 0.72 | 0.27 | 0.72 | 0.27 | 60 | 56 | 20 |

[i] This figure includes the employees which are now employed by newly founded independently run companies with which the parent company still has ownership ties. In organisational terms from the parent company's point of view these employees count as shed but not unemployed.

## Table 4a: Correlation matrix for the East German variables[i]

| | Dfdi | Dcoop | Dsocres | Dleaving | Dunemp | Dprofit 95 | Dprofit 97 | Dsize90 | Dsize96 | Dbennum90 | Dbennum96 | Ddel ben | Dms90 | Dms96 | Dexport 96 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dfdi** | 1.00 | | | | | | | | | | | | | | |
| **Dcoop** | 0.13 | 1.00 | | | | | | | | | | | | | |
| **Dsocres** | 0.06 | **0.71 **nc** | 1.00 | | | | | | | | | | | | |
| **Dleaving** | -0.39 | 0.12 | -0.30 | 1.00 | | | | | | | | | | | |
| **Dunemp** | -0.19 | **-0.60 **t** | **-0.76 ***t** | **0.59 **t** | 1.00 | | | | | | | | | | |
| **Dprofit95** | -0.06 | 0.03 | 0.35 | **-0.64 **t** | **-0.64 **t** | 1.00 | | | | | | | | | |
| **Dprofit97** | 0.36 | **0.71 **nc** | **0.60 *nc** | -0.38 | **-0.80 ***t** | **0.48 *t** | 1.00 | | | | | | | | |
| **Dsize90** | **-0.50 *t** | 0.18 | -0.01 | **0.66 **t** | 0.33 | -0.28 | -0.07 | 1.00 | | | | | | | |
| **Dsize96** | 0.04 | 0.26 | 0.16 | 0.13 | -0.29 | 0.33 | **0.60 **t** | 0.23 | 1.00 | | | | | | |
| **Dbennum 90** | -0.24 | -0.24 | **-0.53 *t** | **0.66 **t** | 0.46 | **-0.50 *t** | -0.24 | 0.44 | 0.42 | 1.00 | | | | | |
| **Dbennum 96** | **-0.93 ***t** | -0.32 | -0.19 | **0.48 *t** | 0.35 | 0.00 | -0.46 | **0.62 **t** | 0.07 | 0.44 | 1.00 | | | | |
| **Ddelben** | -0.40 | 0.03 | 0.43 | -0.37 | -0.25 | **0.54 *t** | -0.07 | -0.04 | -0.41 | **-0.77 ***t** | 0.24 | 1.00 | | | |
| **Dms90** | -0.20 | **0.50 *t** | 0.42 | 0.23 | -0.07 | -0.38 | -0.15 | 0.16 | -0.62 **t[ii] | -0.37 | 0.00 | 0.40 | 1.00 | | |
| **Dms96** | 0.25 | 0.22 | -0.43 | 0.27 | 0.21 | -0.45 | 0.04 | 0.19 | -0.25 | 0.18 | -0.28 | -0.39 | 0.21 | 1.00 | |
| **Dexport 96** | 0.44 | 0.12 | 0.03 | 0.37 | 0.19 | **-0.73 **t** | -0.12 | -0.01 | 0.03 | 0.43 | -0.30 | **-0.68 **t** | 0.15 | 0.10 | 1.00 |

## Table 4b: Correlation matrix for the Hungarian variables[iii]

| | Hfdi | Hcoop | Hsocres | Hleaving | Hunemp | Hprofit 96 | Hsize 90 | Hsize 97 | Hben num90 | Hben num97 | Hdel ben | Hsoc inc | Hsoc const | Hsoc reorg | Hms90 | Hms97 | Hexport 97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hfdi** | 1.00 | | | | | | | | | | | | | | | | |
| **Hcoop** | 0.07 | 1.00 | | | | | | | | | | | | | | | |
| **Hsocres** | 0.31 | **0.83 ***nc** | 1.00 | | | | | | | | | | | | | | |
| **Hleaving** | 0.26 | -0.39 | **-0.53**t** | 1.00 | | | | | | | | | | | | | |
| **Hunemp** | **0.76 ***t** | -0.17 | -0.10 | **0.75 ***t** | 1.00 | | | | | | | | | | | | |
| **Hprofit96** | -0.31 | 0.27 | **0.47*t** | **-0.57**t** | **-0.59**t** | 1.00 | | | | | | | | | | | |
| **Hsize90[iv]** | -0.44 (-0.16) | -0.12 (**0.58**t**) | -0.17 (0.28) | -0.02 (-0.39) | -0.37 (**-0.48*t**) | 0.35 (0.22) | 1.00 | | | | | | | | | | |
| **Hsize97** | -0.45 (-0.25) | 0.17 (**0.58 **t**) | 0.03 (0.32) | -0.30 (**-0.53 **t**) | **-0.56 (-0.58 **t**) | 0.40 (0.29) | **0.90 (0.98 ***t**) | 1.00 | | | | | | | | | |
| **Hben num90** | -0.13 | **0.67 **t** | **0.52 **t** | -0.13 | -0.23 | 0.19 | 0.43 (**0.51*t**) | 0.49 (**0.45*t**) | 1.00 | | | | | | | | |
| **Hben num97** | -0.17 | **0.84 ***t** | **0.67 **t** | -0.37 | -0.41 | 0.34 | 0.06 (**0.53**t**) | 0.26 (**0.49*t**) | **0.81 ***t** | 1.00 | | | | | | | |
| **Hdelben** | -0.13 | **0.62**t** | **0.52**t** | **-0.46*t** | **-0.42*t** | 0.34 | -0.41 | -0.16 | 0.18 | **0.72 ***t** | 1.00 | | | | | | |
| **Hsocinc** | 0.04 | 0.15 | 0.26 | -0.27 | -0.08 | 0.15 | -0.28 | -0.32 | -0.02 | 0.28 | **0.51*t** | 1.00 | | | | | |
| **Hsocconst** | -0.04 | 0.26 | **0.56*nc** | **-0.46*t** | **-0.44*t** | **0.67**nc** | 0.21 | 0.19 | **0.42*t** | **0.56**t** | **0.45*t** | 0.38 | 1.00 | | | | |
| **Hsocreorg** | 0.04 | -0.26 | -0.15 | 0.26 | 0.08 | -0.26 | 0.41 | 0.17 | 0.37 | 0.09 | -0.29 | 0.08 | 0.38 | 1.00 | | | |
| **Hms90** | -0.36 | **0.71 ***t** | 0.53 | -0.30 | -0.39 | **0.49 *t** | 0.47 (**0.48*t**) | 0.56 (**0.49*t**) | **0.72 ***t** | **0.70 ***t** | 0.33 | 0.11 | 0.36 | 0.03 | 1.00 | | |
| **Hms97** | **-0.46 *t** | **0.60 **t** | 0.43 | -0.38 | **-0.54 **t** | **0.48 *t** | 0.41 (**0.50*t**) | **0.55 (0.53**t**) | **0.54 **t** | **0.64 **t** | **0.44 *t** | -0.02 | 0.40 | 0.03 | **0.89 ***t** | 1.00 | |
| **Hexport 97** | -0.03 | **0.49 *t** | **0.48 *t** | **-0.67 **t** | **-0.54 **t** | **0.49 *t** | 0.26 (**0.84 ***t**) | **0.61 **t** | 0.36 | **0.43 *t** | 0.30 | -0.12 | 0.31 | -0.27 | 0.28 | 0.28 | 1.00 |

[i] In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-10\%)} = 2.7$, $X^2_{(critical-5\%)} = 3.84$, $X^2_{(critical-1\%)} = 6.63$. We find that the uncorrected $X^2$ statistic is significant at the 10% level for associations of 0.60 [$X^2 = 2.97$]. Associations of 0.71 are significant at the 5% level [$X^2 = 4.44$ dropping the 0.5 observation for Dsocres or $X^2 = 5.21$ assuming 0.5=1]. Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. If we allow for this by using Yate's correction for continuity, then we find that associations of 0.60 generate a corrected $X^2$ of 1.05 only and are hence insignificant. Associations of 0.71 yield a corrected test statistic of 2.26 which is significant at the 20% level only [$X^2_{(critical-20\%)} = 1.64$]. The significance levels reported in Table 3a refer to the uncorrected test statistics and should be therefore treated with some care. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^7_{0.15} = 1.11$, $t^7_{0.10} = 1.41$, $t^7_{0.05} = 1.89$, $t^7_{0.01} = 2.99$. We find that in both cases all associations above 0.48 (t= 1.44) are significant at the 10% level, associations above 0.59 (t= 1.93) are significant at the 5% level and associations above 0.75 (t= 3.00) are significant at the 1% level.

[ii] This result is entirely due to D5 who is an outlier both with respect to Dms90 and Dsize96 and is hence unlikely to reflect an underlying economic relationship.

[iii] In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-10\%)} = 2.7$, $X^2_{(critical-5\%)} = 3.84$, $X^2_{(critical-1\%)} = 6.63$. We find that the uncorrected $X^2$ statistic is significant at the 10% level for associations of 0.56 [$X^2 = 3.3$]. Associations of 0.67 are significant at the 5% level [$X^2 = 4.94$]. Associations of 0.83 are significant at the 1% level [$X^2 = 7.2$]. Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. If we allow for this by using Yate's correction for continuity, then we find that associations of 0.56 generate a corrected $X^2$ of 1.10 only and are hence insignificant. Associations of 0.67 yield a corrected test statistic of 2.37, which is significant at the 20% level only [$X^2_{(critical-20\%)} = 1.64$]. Associations of 0.83 generate a corrected test statistic of 3.91, which is significant at the 5% level. The significance levels reported in Table 3b refer to the uncorrected test statistics and should be therefore treated with some care. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^9_{0.10} = 1.38$, $t^9_{0.05} = 1.83$, $t^9_{0.01} = 2.82$. We find that for both types of associations all correlation coefficients above 0.42 (t= 1.38) are significant at the 10% level, associations above 0.52 (t= 1.83) are significant at the 5% level and associations above 0.69 (t= 2.85) are significant at the 1% level

[iv] Values in parentheses indicates correlations obtained if H11 is excluded, which is a strong outlier with respect to size and is hence likely to bias the results obtained for Hsize90 and Hsize96.

## Table 5: Summary of the main statistical findings

| Hypo-thesis | East Germany | Hungary |
|---|---|---|
| 1 | YES<br>- historically larger companies still tend to provide more benefits in 1996 | YES<br>- strong persistence in trends for size and number of benefits provided<br><br>- no evidence for the hypothesis of Estrin et al (1997) that larger firms experience larger declines |
| 2 | NOT APPLICABLE<br>- large losses in market share for all companies, no East German companies with monopoly power in data | YES (?)<br>- strong positive relationship between market share and social service provision: result of insufficient restructuring pressures due to lack of competition?<br>- strong persistence of historical trends |
| 3 | WEAKLY YES<br>- it is not clear whether companies are less profitable because of continued provsision or whether social services are a compensation for lower wages in less profitable companies<br>- companies which provided more social services in 1990 seem to have faced a greater restructuring challenge overall and were less profitable than average in 1995 but no longer in 1997 | NO - on the contrary<br>- companies which have at least maintained the real value of their social services are more likely to be profitable in 1996 |
| 4 | NO<br>- all relevant associations are insignificant | NO (?)<br>- strong positive relationship between market share and social service provision: does maintaining the latter have a positive net effect on efficiency? |
| 5 | WEAKLY YES<br>- companies which have achieved high exports in 1996 have shed an above average number of benefits | NO- on the contrary<br>- companies with a good export performance provide many benefits<br>- they shed fewer than average employees<br>- they are larger than average<br>- they tend to have a humane management<br>- they are more likely to be profitable |
| 6 | STRONGLY YES | NO |
| 7 and 8 | YES- BUT UNEXPECTED EFFICIENCY IMPLICATIONS<br>- socially responsible management makes fewer than average employees unemployed<br>- results in co-operative trade union<br><br>BUT far from this insider involvement and these inherited social norms being efficiency reducing we find that:<br>- these companies are more likely to be profitable | YES- BUT UNEXPECTED EFFICIENCY IMPLICATIONS<br>- humane management sheds fewer than average employees<br>- keeps the real value of social services at least constant<br>- results in co-operative trade union<br>BUT far from this insider involvement and these inherited social norms being efficiency reducing we find that:<br>- these companies are more likely to be profitable<br>- have higher than average market shares<br>- better than average export performance<br>- tend to be bigger than average<br>- high levels of labour shedding likely to be due to bad business prospects rather than due to insufficient restructuring |
| 9 | NO- The differences in the trends are significant. There is no indication that the Hungarian companies are aiming following the West German trends by significantly reducing their social service provision rather than just fine tuning existing arrangements. | |

# Chapter 3

# Integration with the investor: Strategic restructuring, knowledge transfer, new products and production methods


## Abstract

*This chapter examines the role of foreign direct investors in the strategic restructuring of their subsidiaries. Strategic restructuring is interpreted as the development of new capabilities and final products, which improve a company's performance both in terms of profits and exports. The notion that companies with FDI will outperform their rivals because of knowledge transfer from their investor and his role in introducing new products and production methods is examined both qualitatively and statistically. This is generally supported in the East German data but not in the Hungarian one. It emerges that a) investors are frequently unaware of local idiosyncrasies and consequently endorse the same restructuring in both East Germany and Hungary and b) these strategies are proving successful in the East German context but not the Hungarian one. I argue that the East German context is sufficiently 'similar' to the Western one for managerial approaches which have been developed elsewhere to work well. In Hungary, however, a mutual learning process has to take place; a simple one-way diffusion process from the investor to the local management is not enough. I also find little evidence that the valuable knowledge transferred to East German subsidiaries is being diffused down a local supply chain, while in the Hungarian context it is not clear how valuable the knowledge being diffused really is.*

## Introduction

Under the previous economic order the horizontal product range[1] of most formerly state owned companies in the transition economies of Central and Eastern Europe tended to be determined on the basis of non-market considerations. The dictates of planners were frequently more important than the preferences of consumers. To the extent that in any given case this is true there is a need to change the composition of a company's product range, both to ensure its future competitiveness and in order to improve allocative efficiency on an economy-wide scale.

In addition frequently even companies producing goods which were previously attractive to consumers are facing problems. This could be due to factors such as shifts in demand patterns making 'old' products intrinsically less desirable or due to entrants offering attractive new substitutes. Alternatively consumers, especially in the case of many export goods to the former Soviet Union, may lack the purchasing power to continue buying the company's output. Whatever the cause for the frequently sharp fall in a company's demand, it will have to have to find ways to improve its performance by developing new products and capabilities. This chapter examines the contribution of foreign direct investors in this process of strategic restructuring. Two main questions are asked:

[1] The *"horizontal product range"* will only refer to physical products which do not use other internally produced physical products as inputs and are not themselves inputs to physical products which are further up the value added chain. Whether we are concerned with changes in horizontal product range rather than vertical integration depends on which section of the value-added chain the affected product range is on. If a company closes down the manufacturing of a product which it uses as an input or which uses internally produced inputs, then it is reducing its vertical integration. If, on the other hand, it closes down a final product which is not used as an input into another product made by the company, then it has reduced its horizontal product range.

- Do companies with FDI outperform their rivals because of the knowledge transfer from their investor and his role in introducing new products and production methods?[2] How important is the potential contribution of local managers in this context?
- Do foreign direct investors contribute to transition by inducing a knowledge diffusion process down the local supply chain?[3]

The chapter proceeds as follows: Section 1 provides a survey of the literature. Section 2 derives empirical hypotheses. Section 3 presents the empirical evidence found in my case studies and derives statistical variables. Section 4 confronts the hypotheses. Section 5 concludes by interpreting the statistical evidence found.

## 1. Literature survey: The expected contribution of foreign direct investors

The claim is frequently made that 'strategic' or 'deep' restructuring as opposed to 'reactive' and 'ambiguous' behaviour is commonly only observed in companies with FDI [Grosfeld & Roland (1995, p.10), Carlin, Van Reenen & Wolfe (1995, p.448 ff.), Carlin & Landesmann (1997, p.77), Meyer& Moller (1998, p.412)]. The whole notion that there are different types of restructuring developed as a result of the, for some, unexpected observation that, given sufficiently hard budget constraints and sufficient (potential) product market competition, managers in state-owned enterprises engaged in a wide variety in restructuring measures even before companies were privatised

[2] See, for example: Grosfeld & Roland (1995, p.10), Carlin, Van Reenen & Wolfe (1995, p.448 ff.), Carlin & Landesmann (1997, p.77), Meyer& Moller (1998, p.412)].
[3] See, for example, Grabher (1996, p.181 ff.)

[Carlin & Landesmann (1997)]. The restructuring measures which different authors list as evidence of deep or strategic restructuring vary over time and between authors, so that it is hard to avoid the impression that to some extent strategic restructuring is simply 'what local managers cannot do by definition'.

In essence reactive restructuring is generally seen as survival orientated behaviour which aims at maximising enterprise performance within the company's existing resources and capabilities. Grosfeld & Roland (1995, p 6) have a narrow definition of reactive restructuring, namely activities which seek to "reduce costs and scale down enterprise activity: cutting obsolete production lines, shedding labour, getting rid of non-productive assets." On such an account reactive restructuring becomes *indistinguishable from a managed winding-down of the firm. Estrin et al (1995, p.19* ff.), give a list of 'short-run' responses local managers actually engaged in: "adjustments to the production process (closure of lines) changing the product mix toward more sellable goods, laying off workers, selling machines or even plants and reorganising production toward cheaper or higher quality inputs".

The key feature of all the definitions of strategic restructuring is the development of new capabilities and final products, which enable a company to be internationally competitive in the long-run. The contention is that although managers in companies without FDI might have had the incentives to engage in reactive restructuring, they lack the resources and know-how to restructure strategically. Investors are expected to contribute both [Meyer & Moller (1998), Grosfeld & Roland (1995)]. Particular

importance is ascribed to investors providing substantial new investments and changes in technology, new products and management structures [Carlin & Aghion (1996)].

Skills which researchers detect shortages in and which are needed as a prerequisite of strategic restructuring include accountancy, financial control, organisational restructuring, marketing and sales, quality control and information systems [Estrin et al (1995)]. It is also hoped that investors will aid restructuring by giving their subsidiaries access to Western supplier and marketing networks.

The extent to which companies with FDI use local suppliers is central in determining the degree to which the knowledge transferred from investors becomes diffused through the wider economy. In this context Grabher (1996, p.181) claims that globally focused strategies which entail the total integration of the local company with the investor have "culminated in the construction of cathedrals in the desert", while investors with multidomestic strategies have favoured the emergence of locally integrated production networks.

A question which is rarely asked is the extent to which the knowledge investors bring with them is relevant in the transition context in the first place. The greater the country specific idiosyncrasies, for example, the more important is the historical and cultural knowledge of local managers. Since this increases the importance of the local manager's relationship specific investment an implication of the Grossman and Hart (1986) model is that the greater the importance of local factors and knowledge the

less tightly the subsidiary should be integrated with its investor, allowing local managers to retain a greater share of the residual rights of control.[4]

The potential contribution of local managers is, however, frequently downplayed. Dyck's (1997) model of managerial selection in transition provides an extreme example since it is based on the underlying assumptions that there is a need to sack all East German managers and that a manager's quality in the West German context translates one to one to his abilities in the East German one. On the basis of adverse selection problems faced by central privatisation agencies he advocates a rapid sale of companies to direct investors who can internally transfer managers of the 'right' quality. Dyck does point out that one needs to distinguish, however, between *functional skills*, such as marketing, sales and accounting and *restructuring skills* which refer to a manager's ability to implement a wide-ranging process of change.

Only in the specific West German- East German example can one assume that functional skills are fully transferable, since both countries have the same set of laws, regulations and competitors. In Hungary, however, where Western managers face different societal norms, traditions, a frequently idiosyncratic market and language problems, it is not at all clear that a manager who might have shown good restructuring skills in, say West Germany, will do well in Hungary. Meyer & Moller (1998, p.417), for example, observe that frequently "Western managers apply

[4] Grabher & Stark (1996, p. 18ff.) discuss the advantages of such 'loose coupling' from an evolutionary perspective, arguing that it increases a company's learning interface and helps to avoid possible cognitive lock-ins.

concepts of management developed elsewhere and adapted insufficiently to the local conditions."

Another question which needs to be considered is whether the 'reactive restructuring' -'deep restructuring' literature is not simply observing a natural progression of different phases of restructuring. Grosfeld & Roland (1995) argue that defensive restructuring must not necessarily precede strategic restructuring, since both could and should be done simultaneously. Such a point of view ignores two issues. Firstly there is the question as to how much genuine change an organisation and its employees can cope with and adjust to at any given time. It might well be that sequential and targeted change is more effective in the long run than 'revolutionary' programmes which try to change all aspects of a company's operation at once and put too pressure on the employees' ability to learn and adapt. Interviewees in my case studies regularly gave examples of the organisational chaos and individual bewilderment which resulted from having to cope with 'too much' change[5].

The second argument against 'revolutionary' restructuring is the possibility that delaying some aspects of restructuring might preserve valuable options. Measures termed as 'defensive' increase the efficiency of a company's existing operations and

[5] The procurement manager in H2 stated, for example: "When we give tenders, we find that Hungarian companies have a lower amount of experience and economic knowledge than foreign ones. An exception to this previous statement are Hungarian companies with FDI, which are even more confused than those without an investor because their investors are constantly introducing new systems and procedures." Baden-Fuller & Volberda (1997) claim as well that too much change will lead to chaos, loss of cultural glue, fatigue and organisational breakdown. They argue that the scope of change should be contained either through spatial or temporal separation.

maintain the option of branching out into new areas as opportunities emerge over time in a highly uncertain environment. As new information emerges, managers can implement 'strategic' restructuring measures with much greater confidence that their strategy is a good one. Ericson (1998) suggest that companies in transition economies have gone through 'noisy' and 'niche-discovery' (1990-94) and 'cost-reduction' phases (1995 onwards) which seem to reflect stages of learning as a prelude to real restructuring rather than restructuring itself.

## 2. The empirical hypotheses

The main hypothesis emerging from the literature survey is that companies with foreign direct investors will outperform their rivals because of the unique and positive contribution investors make to enterprise restructuring. Hypotheses 1a & b formulate this contention. Hypotheses 2-5 state specific contributions investors are supposed to make to strategic restructuring. Hypothesis 6 asks whether investors are merely creating 'cathedrals in the desert' or contributing to the dissemination of know-how down the supply chain.

HYPOTHESIS 1:

- *A positive association between profitability/ export performance to Western European markets (as proxies for successful restructuring) and functional integration with the investor/ companies in which the investor is the main force in managerial training (as proxies for knowledge transfer)* This hypothesis is deduced from the 'strategic' versus 'reactive' restructuring literature. See, for example: Grosfeld & Roland

(1995, p.10), Carlin, Van Reenen & Wolfe (1995, p.448 ff.), Carlin & Landesmann (1997, p.77), Meyer & Moller (1998, p.412)].

Background assumption:

- *The larger local idiosyncrasies are, the more important is the potential contribution of local managers.* [See in this context: Grossman & Hart (1986), Dyck (1997),Grabher & Stark (1996, p.18ff.)]

Hypotheses 2-5 are secondary hypotheses which will help us interpret the findings for Hypothesis 1. Unless otherwise stated they as well originate directly from the 'strategic' versus 'reactive restructuring' literature surveyed.

HYPOTHESIS 2:

- *A positive association between the introduction of new products and the closure of old ones in companies with FDI only* This hypothesis is introduced to distinguish between a controlled winding down of a company, when only closures occur, and a strategic reorientation in a company's product range.

HYPOTHESIS 3:

- *A positive association between FDI and the introduction of new products*

HYPOTHESIS 4:

- *A positive association between FDI and the introduction of new production methods and forms of work organisation* If the new products introduced by investors

genuinely augment the core capabilities of the company and entail knowledge transfer from the investor, then the new products should be associated with new production methods and concomitant new forms of work organisation.

HYPOTHESIS 5:

- *A positive association between FDI and relative investment levels*

Hypothesis 6 relates to the extent of knowledge diffusion from companies with FDI through the wider economy [See Grabher (1996, p.181 ff.) on the topic]. Even is extensive knowledge transfer from the investor to his subsidiary is taking place, investors might still be creating 'cathedrals in the desert'. The hypothesis is formulated in accordance with this latter suggestion.

HYPOTHESIS 6:

- *A negative association between FDI and companies using local suppliers*

The relative contribution of local managers [see Grossman & Hart (1986) and Dyck (1997) in this context] and the degree of loose coupling between the investor and its subsidiary [Grabher & Stark (1996, p.18ff.)] are captured by dummies which represent the relative influence the investor had on the restructuring of the product range, production methods and in determining managerial training respectively. These dummies are included in all the hypotheses involving a relationship between FDI and

another variable. The background assumption is in this context that the larger local idiosyncrasies are, the more important is the potential contribution of local managers.

## 3. The variables and case study evidence[6]

This section serves two functions: Firstly to introduce the variables used and secondly to present the case study evidence relating to each variable. The case study evidence is presented in two ways. Trends in the data can be seen from a discussion of the means of the variables. Valuable information is obtained from asking whether these means show statistically significant differences for the East German and Hungarian case studies. Excerpts from interviews provide qualitative illustrations of some of the issues which easily get lost in statistical discussions.

### 3.1 Investor related variables[7]

- *A variable capturing whether the company has a foreign direct investor or not: By 1996 companies with FDI are usually wholly owned subsidiaries*

[6] The case study evidence not only serves as a basis for the statistical variables used in Section 4, but will also help to interpret the statistical results obtained.

[7] Table 1 lists and explains all the variables used. Table 2 summarises the extent and type of functional integration companies have with their investor. Tables 3a&b summarise the variables and their respective means. Tables 4a &b show the correlation matrices obtained. All tables can be found in the Appendix.

In order to examine whether differences between the means of two country specific variables are significant a small-sample t-test was used for continuous variables and a chi-square test of independence for dummies. Such a procedure effectively tests whether it can be assumed that the Hungarian and East German data has been generated by the same underlying processes, that is we are testing for homogeneity between the two countries. Unless it is otherwise stated the null cannot be rejected for the variables used in my case studies. If the null hypothesis of homogeneity cannot be rejected, then the two country specific variables can be pooled. Correlation matrices were obtained for the pooled data but did generally not contradict previous findings or add something new.

In the East German data 77% of companies had foreign, including West German, investors in 1996. The two companies which at this time did not fall into this category were both up for re-sale after failed privatisations. The privatisation of D6 failed because the investor ended up asset stripping until the company's board intervened and initiated a re-purchase by the Treuhand. When I called in 1998, D6 had been re-privatised to a UK company. The case of D7 is very unusual in that this is a company which is very successful in spite of its investor who went bankrupt. D7 was the only company in a large conglomerate which did not go down with its Austrian investor. It is currently up for resale.

In Hungary the picture is more varied. 63% of the companies visited have a foreign direct investor, H5 and H11 have floated on the Budapest stock exchange after prolonged government involvement (some would say interference), H6 has been going from one crisis and government intervention to the next and H8 has an institutional investor who does not interfere in the day-to-day running of the company. Only in four of the East German and five Hungarian companies did the investor have a determining influence on the restructuring of the product range.

- *Variables capturing the relative influence of the investor in the restructuring of the product range and production methods*

In each company with FDI I asked East German and Hungarian general, production and personnel managers to assess the extent to which the investor, rather than they, was the determining force in the restructuring of the (horizontal) product range and

production methods. These variables capture two things: firstly the potential knowledge transfer which has occurred from the investor and secondly the input which local managers had into the restructuring process. The fact that the investor was the main force in the restructuring of the company's operations does not necessarily entail that he has transferred any know-how to the local management, since the restructuring process might have been 'dictatorial' rather than consultative. In companies where the local management was consulted in the strategy formation and involved in the implementation stage but where the investor gave important impulses and had the last word, managers usually claimed that they had about equal influence. The claim that the investor had sole influence usually stood for 'authoritarian' investors. It was not uncommon for a dictatorial investor to face a highly antagonistic local management.

The main determining force in the restructuring of H2's products and production processes was the investor. The Budapest factory's general manager claims that "in theory market forces play an important role, but in practice H2 is not innovative or very aggressive. The market is saturated and all the players have a large excess capacity." The "old" management had a secondary influence on the restructuring process of production, but this was not for lack of trying. Apparently there were large clashes between the old management and ex-pat managers in the factory in northern Hungary. My interview partner described them as follows: " Two internally closed groups were facing each other. My colleagues had to deal with ex-pats who had little understanding of our products. The ex-pats wanted to get rid of all local brands. Many local managers got sacked over this issue and the ex-pats got their way. But the introduction of the Western brands was a flop: There was a big price difference between the new brands and the local brands which had been scrapped and this price difference was, in the eyes of the Hungarian consumer, not justified by quality differences. Introducing new brands also entails large advertising costs etc. The ex-pats learned it the hard way that it is worth keeping local Hungarian brands and have re-introduced the very brands they had been so keen to scrap and re-place by their own Western ones."

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The investor "got all these young, dynamic people from Austria in who did not understand the situation here and wanted to introduce revolutionary changes. However if a company has been run differently for 40 years, then one cannot expect that even after 2 years of schooling everybody will support the new measures, that even if we understand the theory, in practice everything will work as people in the head offices have thought it out.....The new people who were supposed to run the company from the top did not know the market and had no contact with the people here. This lead to arguments and disagreements with the "old" management and workforce."[8]

[8] Notes on a round table discussion with the personnel, procurement and technical managers in D7.

Overall, however, investors tended to have a relative hands off stance, with only about a third of the East German and Hungarian companies experiencing a strong involvement in the restructuring of their product range and production methods.

- *A variable capturing whether the investor was the main force in managerial training*

Managerial training usually encompasses sector specific training in sales, marketing, communication, accounting and finance. In particular the following training needs were identified by interview partners[9]:

1. English language courses[10]

2. Quality control measures[11]

3. Computing/ computer related skills[12]

4. General management skills (e.g. the ability to take responsibility and make decisions, cost consciousness)[13]

5. Commercial law, book-keeping, accounting, financial analysis[14]

9. Logistics, procurement, sales and marketing[15]

Investors have overall been a lot more active in providing managerial training than in their direct involvement with the restructuring of the product range and production

[9] This list reflects the findings made by Estrin et al (1995).
[10] D4, D5, D6, H1, H2, H4, H5, H7, H9, H11
[11] D6, D7, H1, H3, H4, H5, H6, H7, H8
[12] H1, H4, H5, H7, H8, H10, H11
[13] H2, H7, H9, H10, H11, D1, D4
[14] D5, D6, D7, D9, H10
[15] H10, H11, D9

methods. The company's investor was the main force in managerial training in 55% of the East German companies and 36% of the Hungarian ones.[16] In companies with a foreign direct investor these managerial skills are typically transferred in two different phases: In the first phase the investor tends to put managers from Western subsidiaries into the top positions. Furthermore there is a tendency to send the remaining local managers on training and exchange programmes. Ex-pat managers can provide further on-the-job training[17]. In the second stage the number of expat managers is reduced and they are replaced by newly hired young local employees or old managers who are thought to have now acquired the necessary skills. Clear evidence for knowledge transfer only occurs when the investor phases his direct presence out as soon as he feels that the subsidiary can run itself on its own[18].

[16] Although there is a relatively large difference between these percentages, the assumption of homogeneity cannot be rejected.
[17] D2, D8, D9, H2, H3, H7, H9, H10
[18] The investor of D2 explicitly had such a policy.

H2 provides an extreme example of a strong reliance on ex-pat managers and a lack of knowledge transfer. Only two people (the general manager of H2's Budapest factory and the MD of H3) remain in the top management of all of what used to be the Budapest sweets' industry before 1990. In H2's top and upper middle management local managers were replaced almost entirely by ex-pat managers. Middle managers tended to be replaced by young Hungarians who "have the language and computing skills but lack the knowledge which based on experience. The ex-pat managers have learnt some Hungarian, but nevertheless it still has great problems in picking up information from the surroundings in which H2 operates. This is a particular problem for the marketing department."[19]

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In addition sacking local managers can have a very de-motivating affect on the workforce. "Some "old" managers were simply untenable, everybody knew who they were. But with every competent and respected old manager the investor sacked, the investor signalled to the workforce that they were regarded as useless as well, the workforce identifies with these managers and thus is demotivated with every further manager being sacked."[20]

Companies without FDI buy training courses on a steadily growing market and focus on hiring young employees with the requisite skills. This process, however, requires the incumbent management to realise out of their own volition that they need training.

- *A variable capturing the extent of functional integration with the investor*

Table 2 summarises the case study evidence on the type and extent of functional integration companies have with their investor. In four out of nine of the East German companies with FDI the investor provides design as well as R&D facilities. The provision of computing facilities by the investor plays a role in one third of the

[19] Interview with the general manager of H2's Budapest factory.

companies and in only one company does the investor provide the subsidiary with centralised procurement. All the East German companies are responsible for organising their personnel, quality control, maintenance, sales, transportation, marketing and customer service needs.

In Hungary the picture as to what types of functions are typically provided by investors is less clear. Rather companies tend to fall into two camps, that is those which are closely integrated with their investor and those which are not. In addition I find that investors tend to concentrate on different types of functions in the Hungarian companies than in the East German ones. In the Hungarian companies there is more involvement in sales, marketing and procurement and less in the areas of R&D, design and computing facilities. In strong contrast to the East German ones the most commonly provided functions in the Hungarian companies are procurement and marketing (in four out of nine companies), followed by co-operation in R&D, sales and design (in one third of the companies). In two out of eleven companies is the investor involved in quality control and computing facilities, while in only one company each does the investor concern himself with personnel and customer services. The only area experiencing no involvement by the investor in all cases is maintenance.

Companies cite as the main advantages of being functionally more integrated with the investor:

[20] Interview with the manager in charge of change management in company D8.

- Integration of the local company with the investor's world-wide procurement activities leads to cost savings.[21]
- If the investor provides computing facilities, this can lead to an knowledge transfer[22]
- Integration of the marketing functions can open up new trade channels to the Hungarian subsidiary[23]
- Functional integration with the investors enables the subsidiary to make use of synergies, especially in R&D[24]

Companies cite as the main disadvantages of being functionally more integrated with the investor:

- Some investors try to import practices and policies which are ill-adjusted to the subsidiaries' environment[25]

[21] H4, H7, H9
[22] H4
[23] H4
[24] D4, D5, D8, D9
[25] H2, H3, H7, D7

H2 is highly integrated with its investor and the production manager interviewed made the following comments: "(Our parent company) tries to have a coherent organisational methods on a world-wide level. This results in very hierarchical structures and in methods which in their uniformity do not always adjust well to local conditions. In particular, the Hungarian subsidiary suffers from information flow problems. This is particularly true for the investor's marketing department, which seems to be unable to get to grips with Hungarian idiosyncrasies because they are unable to take in information from the Hungarian subsidiary. The overall consequence is that H2 is very slow in reacting to market developments."

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H7 is very successful and has a good relationship with its investor. This has not always been the case. Around 1992 the company's employees reached the conviction "with 75% certainty" that the investor had only been really interested in gaining market share for himself by acquiring H7 and was now systematically working towards H7's closure. For example, H7 had a 7% market share in Western Europe in its main product lines in 1989. By 1992 this percentage had almost halved due to "the investor's insistence of introducing American methods into the European market leading to a total disorganisation in H7's sales and marketing activities"[26] . The investor did furthermore not realise the international strength of H7's brandname and insisted on H7's brand being replaced by the investor's brand on all of H7's products from one day to the next. "Our sales people had to pick up the phone and introduce themselves as employees of our investor. We literally had buyers calling up and responding 'Sorry, I misdialled. I wanted to speak to company H7' and hanging up."[27]

- A general reduction in the subsidiaries' flexibility[28]

[26]H7 was very unusual in the fact that ever since 1957 it (rather than a central government agency) was in charge of its own export activities and had a very high proportion of its output being exported into Western countries.

For example the change manager in D8 complains that if D8 wants to introduce changes, the interests and position of other companies within the investor's conglomerate (some of its suppliers belong to the same investor) have to be taken into consideration.

3.2 Variables capturing changes in the companies' product range

- *Variables capturing the total number of restructuring measures affecting both the company's vertical and horizontal product range, the number of horizontal products closed and newly introduced as well as the net change in horizontal integration* [Hypotheses 2, 3 and 4]

In both the East German and Hungarian companies net horizontal integration has declined only marginally. This process of changing the composition of a company's horizontal product range tends to take place in three steps:

- Firstly all companies have closed down some lines of production which were not inputs to other activities nor used internally produced products as inputs.

  Secondly companies intensify their activities (that is further specialise within the core and increase the proportion of physical and human capital used in production) on the smaller section of the value added chain that has been defined by the reduction in vertical and horizontal product range. The newly defined core activity always closely relates to a line of production which the company has previously engaged in, even if not focused on.

[27] All quotes from an interview with H7's trade union representative.
[28] H3, D8

- Once this new core has been established, companies tend to partially reverse the reduction in horizontal product range they have experienced by introducing new products. These tend to aim at market niches which are new but closely related to the company's perceived core competency. To the extent that these new horizontal products entail more complex production processes their introduction can have adverse effects on the company's productivity.

> "In the West one factory produces one product. Before privatisation, different factories in the food industry specialised as well. Now these factories have been privatised to different investors and all the new companies want to produce everything, reversing the previously existing division of labour within the food industry. This leads to a very high degree of complexity in each factory and when you compare such a factory to a specialised Western factory, you are not comparing like with like. Our one factory which is specialising in one product almost fulfils Western standards."[29]

3.3 Further variables

- *Dummies to capture whether the company is profitable in 1995, 1996 or 1997* [Hypotheses 1a &b]: In 1995 44% of the companies in my East German data were profitable, rising to 77% in 1997. In 1996 54% of the Hungarian companies were profitable and all expected to at least break even by 1999. In each case interview partners were simply asked whether or not the company was making profits. Absolute profit levels were not explicitly sought because of the measurement problems entailed.

- *Variables capturing a company's export performance to the EU, including West Germany* [Hypothesis 1a]

Since the East German companies suffered particularly strong declines in their domestic demand, breaking into the West German market was a matter of survival in most cases. It is a reflection of this fact that they tend to sell 33% of their output in the EU, which is significantly higher (at the 5% level) than the 12% typically obtained by the Hungarian companies. Similarly East German companies increased their exports to the EU by a mean value of 23 percentage points, compared to 5 percentage points for the Hungarian ones (significant at the 10% level).

- *Variables capturing a company's know-how requirements, new production methods and forms of work organisation introduced* [Hypothesis 4]

To assess the extent to which a company has a 'knowledge gap' I asked managers to assess the extent to which their new products required more, equal or less: 1. technological know-how, 2. modern production technology and technological know-how, 3. organisational knowledge, 4. qualified and trained personnel. The experiences of the companies in the two country samples seem to have been very similar in terms of the additional know-how required after 1990, giving the know-how variable a mean of 3.3 in Hungary and of 3.4 in Germany. At no time was it claimed in any company that less know-how was required in any area. It is noticeable that in Germany there were generally less complaints about shortages in organisational and

[29] Personnel manager in H2.

managerial skills, but in both countries the overriding concerns were with technological know-how and the training new technologies required.

I also enquired about the new production methods required by a company's upgraded product range. Interview partners were asked whether they had newly introduced or significantly upgraded their computing facilities in the commercial area, in production planing, in production co-ordination, in R&D, in the management of their stocks as well as their CAD systems, industrial robots etc. I found that the East German companies tended to introduce significantly (at the 1% level) fewer new production methods.[30]

Lastly interview partners were required to state whether they had introduced quality control groups, job rotation, job enrichment, flexible working hours, project groups and other new forms of work organisation. I find that 77% of the East German companies did so, but only 54% of the Hungarian ones.

[30] This finding is not due to the possibility that the East German companies had a better pre-existing stock of capital. If anything, the Hungarian companies had a more up-to-date starting point after the investment drive in the 1980s in many 'key' sectors.

Both in Hungary and East Germany the introduction of new working methods tended to meet with a mixed response. Whereas flexible working hours were usually accepted as a necessity, project groups tended to attract negative comments: "Our investor decided to introduce project groups. We were given leaflets explaining 'our values' and how these project groups would improve both productivity and quality. The investor thought that this was all new to us. It wasn't. Previously such groups were called socialist brigades and our mission statements weren't on leaflets but on banners. The investor did not understand the general apathy which greeted his initiative, nor why these groups were no success."[31]

- *Investment related variables: total investment, investment as a fraction of sales and a variable capturing the extent to which a company benefits from up-to-date machinery* [Hypothesis 5]

For the East German and Hungarian companies accumulative investment between 1990 and 1996 tended to be of the same size as, respectively, 30% and 44% of sales in 1996. The companies' machinery tends to be characterised by an overall comparable degree of obsolescence. In both countries the mean value of this variable suggests that by 1996(7) the typical company's machines still have between 47% and 41% of their technical lifetime left.

From the interviews it was quite clear that if a company was unable to obtain money from an institutional investor, domestic or foreign, or to float on the stock exchange, it needed a direct investor to ease its liquidity constraints. The former options were typically open to only a few large Hungarian companies. In the East German case the Treuhand generally did not encourage any alternative methods of privatisation. In this

[31] Interview with the manager in charge of change management in company D8.

sense investors do seem to play an important role in easing liquidity constraints, but in Hungary this is mostly a function of the underdeveloped domestic banking and stock markets rather than of the subsidiary's wish to obtain foreign involvement and know-how. Several Hungarian interview partners also made the claim that, given the finances, Hungarian managers will always want to buy the best and most up-to-date technology they can possibly afford, while foreign direct investors tend to give them second-hand machinery from Western subsidiaries.

"Usually we get machines which have been replaced in Western factories. We are expected to be happy with outdated machines and generally there is very little investment by foreigners which is of a high quality."[32]

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"It is easy for Western factories to have a higher productivity: even the greenfield site which has been recently build does not operate with the latest technology which most similar Western factories would be employing. We have the latest technology in some areas, but has also received second hand machines from the investor."[33]

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"We continuously upgrade our production methods and were on par with our Western competitors already in the early 1990s. We always buy into the best technology we can conceivably afford when making new capital investments."[34]

[32] Production manager in H2.
[33] Managing director in H3.
[34] Deputy CEO of H5. Similar comments were made in H8 and H11.

- *Variables capturing the extent to which a company relies on domestic suppliers and on suppliers pre-dating 1990* [Hypothesis 6]

It is a reflection of the overall greater stability in the supply networks of the Hungarian companies that 50% of their suppliers tend to pre-date 1990, while this variable obtains a mean of only 28% in East Germany (significant at the 1% level). Hungarian companies also tend to rely to a greater extent on domestic suppliers, a trend which is especially pronounced if one only compares manufacturing companies with each other, allowing for the relatively large number of construction companies in the East German data.

## 4. Confronting the hypotheses

This section presents the statistical evidence obtained with respect to Hypotheses 1-6 in my data set. Tables 4a and 4b in the Appendix summarise the associations found for the variables introduced.

HYPOTHESIS 1:

- *A positive association between profitability/ export performance to Western European markets (as proxies for successful restructuring) and functional integration with the investor/ companies in which the investor is the main force in managerial training (as proxies for knowledge transfer)*

*Summary: Both in the East German and Hungarian data investors have introduced a relatively high number of changes to their subsidiaries' product range. Only in East*

*Germany, however, are these restructuring measures associated with improved profitability and export performance. In the Hungarian context the quality improvements achieved through new production methods rather than new products seem to be key features influencing a company's relative performance. There is no evidence that in the Hungarian data companies with FDI outperform those without.*

The East German data clearly supports the contention that companies which have restructured their product range and production methods effectively tend to achieve higher relative exports.[35] For example companies which have experienced more changes in their general product range [0.54, 10%][36] benefit from an improved export performance. My data also indicates that companies which have introduced an above average number of new production methods have not only achieved high rates of export growth [0.58, 10%] but also have above average total exports in 1996 [0.50, 10%].

The next question is whether East German companies which have restructured effectively have done so because of their investor's contributions. In the east German data functional integration with the investor is associated with an investor who is also

[35] In order to assess why for 1995 the data suggests that there is a negative relationship between a company's export performance and its profitability (at the 5% level) one would have to examine the companies' competitive situation in their export markets. One possibility is that companies initially achieved relatively high exports by having a loss leadership strategy. Alternatively newly exporting companies might have encountered very hostile competitors in their target markets.

[36] The numbers in parentheses indicate the association found and its statistical significance. Statements along the lines of 'companies which have introduced a higher than average number of new production methods have experienced higher than average increases in their export performance' are meant to indicate that in the case studies there is, for example, a significant positive association between the number of new production methods introduced and the export variable.

the main force in the restructuring of the subsidiary's product range and production methods [0.78, 1% in both cases]. Furthermore investors who are active in the restructuring of the production methods also tend to be the main force in managerial training [0.73, 5%].[37] The clearest indication of the value of the know-how provided by investors is the fact that by 1997 companies in which the investor is active in the training of local managers are more likely to be profitable [0.60, 10%] and have also introduced more new products than others [0.52, 10%]. Companies in which the investor was the main force in the restructuring of the product range also benefit from high export growth [0.72, 5%] and total exports [0.71, 5%].[38]

In the Hungarian data I find that there is no clear relationship between restructuring measures affecting a company's product range and better performance both in terms of exports or profitability[39]. I do find, however, that companies introducing a large number of new production methods have benefited from above average export growth [0.68, 5%]. In addition increases in exports tended to go to the EU [0.56, 5%] and a good export performance to the EU tends to be associated with a high probability of being profitable [0.56, 5%].

[37] Similarly companies which are highly functionally integrated with their investors tend to have investors who are active in managerial training [0.53, 10%].
[38] In addition FDI in general is associated with higher export growth [0.52, 10%].
[39] The association which appear to be significant in this context are entirely due to H7, who is an outlier both in terms of its export performance and the number of its overall restructuring measures, especially in terms of the closure of horizontal product ranges. The footnotes to Table 4b provide scattergrams to illustrate this point. Scattergrams were obtained for all the major associations. They are only reported when their visual inspection revealed that a seemingly significant association is entirely due to one or two outliers.

The policies of investors are similar in the East German and Hungarian companies: As in the East German data set I find that companies with FDI have tended to be more active in the restructuring of their product range. They have introduced more overall changes [0.59, 5%][40], closed more horizontal product groups[41] and also introduced more new ones [0.46, 10%][42]. In contrast to the East German data there is little evidence, however, that they have introduced an above average number of new production methods.

My data suggests that in Hungary investors do not seem to be achieving the desired results with their restructuring measures. All the investor related variables are entirely insignificant with respect to a company's export performance and have negative but statistically insignificant associations with profitability. In stark contrast to the East German data the contribution of investors seems to have been neutral at best in the Hungarian context.

HYPOTHESIS 2:

- *A positive association between the introduction of new products and the closure of old ones in companies with FDI only*

[40] This association also holds for companies in which the investor was the main force in the restructuring of the product range [0.62, 5%], for companies who are highly integrated with their investor [0.58, 5%] and for companies in which the investor is the main force in managerial training [0.64, 5%].

[41] This association is especially strong for companies which are highly integrated with the investor [0.61, 5%].

HYPOTHESIS 3:

- *A positive association between FDI and the introduction of new products*

In the East German there is no evidence whatsoever that the companies experiencing a large number of closures are also the ones introducing new product lines. Nor is there any evidence that companies with FDI behave any differently in terms of the number of closures and new products introduced. The mere fact that a company is closing down horizontal product lines is more likely to indicate a managed winding down of its operations than the presence of strategic restructuring.

In the Hungarian data I again find no overall relationship between the closure of old product lines and the introduction of new ones. As argued in the context of Hypotheses 1a & b companies with FDI are, however, more likely than average to be highly active in both areas, without achieving noticeable improvements in their relative performance.

HYPOTHESIS 4:

- *A positive association between FDI and the introduction of new production methods and forms of work organisation*

HYPOTHESIS 5:

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[42] This association also holds for companies in which the investor was the main force in the restructuring of the production methods [0.43, 10%] and who are tightly integrated with their investor [0.57, 5%].

- *A positive association between FDI and relative investment levels*

*Summary: Both in the German and Hungarian data high relative investment levels are significantly related to a company's performance, suggesting a virtuous investment circle. The East German data supports the role of foreign direct investors in easing liquidity constraints. It also indicates their contribution to the introduction of new production and work methods, especially by helping to close the subsidiary's knowledge gap. My findings also stress, however, the importance of a company's pre-existing knowledge base in determining its ability to engage in strategic restructuring.*

*In the Hungarian data there is little evidence that FDI has played a unique role in easing liquidity constraints, since some companies had access to the stock market or institutional investors. I do find, however, that Hungarian companies with FDI engage in a disproportionate number of changes to their work organisation. In contrast to the East German data there is no evidence suggesting that investors contribute to closing a Hungarian company's knowledge gap or that the organisational innovations they introduce enhance the subsidiary's performance.*

In the East German data I find a clear support for Hypothesis 4. Companies with FDI tend to introduce an above average number of new production methods [0.60, 5%]. Changes in a company's production methods are conducive to both higher total exports in 1996 [0.50, 10%] and greater overall export growth [0.58, 10%]. Similarly

companies in which the investor is the main force in managerial training are also likely to introduce more changes to their work organisation [0.60, 5%]. These changes increase a company's probability of being profitable, both in 1995 [0.48, 10%] and especially by 1997 [1, 1%].

A precondition for the introduction of new production and work methods is the availability of the necessary funds. Consistently my East German data suggests that companies which tended to introduce a large number of changes to their work organisation also had high relative investment levels [0.50, 10%]. These high investment levels clearly resulted in more up-to-date machinery in these companies, since changes to the organisation of work are also associated with a lower degree of technical obsolescence [-0.67, 5%].

The role of investors in easing liquidity constraints is supported by the finding that companies in which the investor was the main force in restructuring the product range experienced both higher relative [0.57, 10%] and total [0.48, 10%] investment levels.

As would be expected, higher relative investment levels are associated with a greater probability of being profitable [0.50, 10%]. In this context it needs to be stated that the flow of causation is ambiguous: Companies might be profitable because they have higher investment levels enabling them to introduce more new products etc., or their higher profitability might give them the retained earnings needed to finance

investment. In either case profitable companies are likely to be in a virtuous investment circle.

In the Hungarian data there is little evidence that changes in a company's production methods are in any way associated with FDI. Rather the determining factors seem to be the relative investment levels a company has experienced [0.71, 1%]. Since in the Hungarian data there are companies without FDI which were able to raise significant funds by either floating on the stock market or having an institutional investor FDI was not necessarily a high precondition for high investment levels. High relative investment levels are significantly related to a company's performance: they are associated with higher total exports in 1997 [0.61, 5%], higher export growth [0.75, 1%] and a higher probability of being profitable [0.48, 10%].[43] Since interview partners usually indicated that retained earnings are a major source of investment funds it is likely that there is a two-way causation.

The Hungarian data supports the notion that the investors who are active in the restructuring of the product range [0.60, 5%] and in managerial training [0.69, 1%] are also strongly predisposed towards introducing changes in the subsidiary's work organisation. In contrast to the East German data, however, in 1996 these changes in the organisation of work do not yet seem to achieve their desired results be it in terms of improving the Hungarian subsidiary's relative export performance or profitability.

HYPOTHESIS 6:

- *A negative association between FDI and companies using local suppliers*

*Summary: Only the East German data supports Hypothesis 6. In both countries a continued reliance on pre-existing suppliers, whether local or foreign, tends to be associated with a general lack of investment and of changes to the company's product range and production methods. A restructuring of a company's supply arrangements seems to be a concomitant of strategic restructuring.*

The East German data strongly supports this hypothesis, both with respect to investors in general [-0.83, 1%] and investors who are the main force in the restructuring of the product range [-0.53, 10%]. The data also suggests that a continued reliance on East German suppliers is associated with few general changes to the company's product range [-0.61, 5%] and production methods [-0.48, 10%] as well as with lower than average total [-0.58, 10%] and relative [-0.57, 10%] investment levels. The finding that companies relying on East German suppliers have also experienced below average export growth [-0.67, 5%] and total exports [-0.69, 5%] is partly due to the fact that in this data set it is mainly construction companies who still rely on local suppliers and customers.

In the Hungarian data there is no indication that companies with FDI rely less on local suppliers. What the data does, however, support is the notion that a continued reliance

[43] With the exception of export growth similar relationships hold for total investment as well.

on pre-existing Hungarian (and foreign) suppliers[44] is indicative of a general lack of strategic restructuring. Companies which have introduced a large number of new products [-0.42, 10%], production methods [-0.47, 10%] and have experienced above average relative investment [-0.42, 10%] are all less likely to continue using their pre-existing suppliers. I also find that companies which heavily rely on their old supplies tend to have lower additional know-how requirements [-0.44, 10%]. This is consistent with the previous finding that strategic restructuring not only tends to entail the need to restructure a company's supply arrangements but also to increase its know-how requirements.

## 5. Conclusions and interpretations[45]

A hypothesis emerges which has not been clearly formulated in the surveyed literature: The pre-existing social, cultural and economic structures will have a large bearing on how effective a blanket approach to enterprise restructuring will be.

The problems associated with a blanket approach to restructuring are illustrated by my main general finding that both in the East German and Hungarian companies investors have tended to introduce more overall changes to their subsidiaries' product

[44] Pre-existing suppliers tended to be mainly Hungarian ones [0.44, 10%], but not exclusively so.
[45] This section is best started by a caveat: All my conclusions relate only to my twenty case studies. Although I am hence unable to make statements about trends pertaining to Hungarian and East German companies in general, my case studies nevertheless are well suited to show the degree of support found for the hypotheses studied.

range, but only in the East German case do these strategic restructuring measures seem to have achieved the desired effect in terms of exports and profitability.

The East German data supports the performance enhancing effect of the knowledge transferred by the investor. Functional integration with the investor is associated with investors taking an active interest in training the local management and the restructuring of the subsidiary's product range and production methods. All these policies are in turn associated with an improved export performance and profitability in the subsidiary. Clearly the restructuring measures and training endorsed by active investors and the knowledge directly transferred through functional integration provide the subsidiary with valuable inputs and a viable strategy.[46]

It is in rather strong contrast that the investors who are the main force in the restructuring of the Hungarian subsidiaries' product range and production methods and are involved in the training of the local management[47] pursue similar policies as in the East German context without having a noticeably positive result. In the Hungarian context the performance enhancing effect of improvements in a company's production methods seems to outweigh benefits obtained from introducing entirely

[46] My East German data also supports the important role foreign investors have played in easing liquidity constraints, while in Hungary some companies had access to institutional investors and the stock market. My Hungarian data provides examples of companies who were able to obtain these investment funds without FDI and are using them to implement a successful strategy they have independently developed. Whether they have a direct investor or not in both countries profitable firms seem to be in a virtuous investment cycle, with their retained earnings financing investment into new products and production methods which in turn enhance their future performance.

[47] It should be noted again that in several Hungarian subsidiaries 'being active in the training of the local management' frequently really meant 'keeping them on a very close lead and making sure that they faithfully implement the investor's policies.'

new products. Although investors have a disproportionate tendency to close old product lines and introduce new ones, they seem to focus more on the introduction of new forms of work organisation rather than on providing the Hungarian subsidiary with the most up-to-date production methods and high relative investment levels.[48] In contrast to East Germany, in the Hungarian context investors also have no appreciable effect on their subsidiary's knowledge gap and the organisational innovations they introduce do not seem to be performance enhancing.

The question to arise from these conclusions is why a) the same restructuring measures are being endorsed by investors both in East Germany and Hungary and b) why they are proving successful in the East German context but not the Hungarian one. In this context my case studies provide anecdotal evidence that the value of the knowledge (frequently West German) investors transfer to their East German subsidiaries is very high. Due to the shared language, cultural background, competitors, rules and regulations functional as well as restructuring skills developed in West Germany are easily transferable to the East German context. This hypothesis is supported by the fact that the companies which reported problems with their investor in this respect tended to have genuinely 'foreign' investors.

[48] In both countries closures of products lines tend to be indicative of a managed winding down of the subsidiary's operations rather than of strategic restructuring. The closure of uncompetitive products is a necessary step in re-focusing the company's activities, but not a substitute for actual restructuring. Strategic restructuring clearly involves not just the introduction of new products, but also the use of new production methods.

In Hungary anecdotal evidence suggests that investors were frequently unaware of the demand and cultural idiosyncrasies they were facing, making the potential input of local managers all the more important. Even if local managers frequently lack functional skills, their knowledge of the context in which new strategies need to be developed and implemented in meant that they have important restructuring skills. Investors who did not tap into this source of relevant knowledge and skills frequently ended up endorsing restructuring measures which made little sense in the Hungarian context. Since, for example, Hungarian consumers frequently have a strong loyalty to local brands it makes more sense to improve the quality of these products by introducing new production methods and engaging in process innovation rather than to simply replace them by Western brands. In East Germany on the other hand such demand patterns were relatively rare, making the total replacement of old products a much more attractive strategy.

The simple answer to the first part of the question is, therefore, that investors pursued the same restructuring measures in both East Germany and Hungary because they were frequently unaware of local idiosyncrasies. The strategies endorsed proved to be appropriate in the East German context, but not in the Hungarian one for one main reason: The East German context is sufficiently 'similar' to the Western and especially West German one for managerial approaches which have been developed elsewhere to work well.

For an investment to be successful in a highly idiosyncratic context, however, a mutual learning process has to take place; a simple one-way diffusion process from the investor to the local management is not enough. A mutual learning process involving several feed-back loops makes it unlikely that a company will find it desirable to implement a 'revolutionary' process of change affecting all aspects of its operation simultaneously. The reason is that revolutionary processes of change are likely to be exclusively based on the investors 'vision', not to say his pre-conceived ideas, while a more sequential process of change allows for learning, sequential adaptation and the temporary preservation of options which might become valuable in the future.[49]

Time is, however, a precondition for a sequential learning process and the exploration of future options. The East German companies suffered much stronger competitive pressures following reunification which entailed the loss of all forms of protection. Consequently one could argue that in East Germany there was not only less need to adapt restructuring approaches developed elsewhere to local conditions but that there was also less time to do so.

The last issue which needs to be considered is the extent to which any knowledge diffusion processes are taking place not only from the investor to the subsidiary but

[49] An example of a 'revolutionary' approach would be the almost immediate closure of several old product lines and their replacement by entirely new ones. The closure of the worst old products and the introduction of new production methods to improve the quality of the most promising old product lines would be an example of a more sequential approach.

also within the wider economy. In this context I find that in both Hungary and East Germany companies which have strategically restructured[50] also have tended to seek out new suppliers. In the Hungarian context all companies seem to continue to extensively use local suppliers, whether these pre-date 1990 or not. Only in East Germany is there a noticeable tendency for companies with FDI to disproportionately rely on 'foreign' suppliers. This might well indicate that in East Germany investors are building 'cathedrals in the desert'. It is, however, difficult to say whether in East Germany the general industrial devastation[51] left investors with no other choice than to 'import' inputs, or whether investors have in part caused this deindustrialisation by excessively relying on their pre-existing Western supply networks and never giving East German suppliers a chance. There is little evidence that the valuable knowledge transferred to East German subsidiaries is being diffused down a local supply chain, while in the Hungarian context it is not clear how valuable the knowledge being diffused really is.

[50] (that is have high investment levels and have engaged in an extensive restructuring of their product range and production methods)

[51] See Carlin (1994) for an account of the extent of deindustrialisation in East Germany following reunification.

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# Data Appendix

## Table 1: List of variables summarising the data on strategic restructuring

| | |
|---|---|
| **D(H)PRODCH** | number of major product groups, both vertical and horizontal, which have been either closed down or have been newly introduced; this variable captures the overall restructuring activity with respect to the company's product range |
| **D(H)PCLOSED (hor)** | number of major horizontal product groups which have been closed down |
| **D(H)PNEW (hor)** | number of major new horizontal product groups which have been newly introduced |
| **DΔhorint** | H Pnew (hor) minus H Pclosed (hor): This variable captures the net effect on horizontal integration of the closure of (horizontal) product lines and the introduction of new ones |
| **D(H)PRODMETH** | number of new production methods which have been introduced since 1990: a given method is given the value of 1 if it was entirely new and 0.5 if its use has been significantly expanded |
| **D(H)WORKORG** | 1 if the company introduced new methods of work organisation, 0 otherwise |
| **D(H)INVS** | accumulative investment between 1990 and 1996 divided by after tax sales for 1996 |
| **D(H)INVEST** | accumulative investment between 1990 and 1996 in million DM |
| **D(H)AGELIFE** | average age of machinery divided by its expected technical lifetime; if there are several groups of machinery with differing average ages and lifetimes, then the overall figure is the average of these averages. Assume, for example, that there are two groups of machinery, G1 and G2, with a lifetime of L1 and L2 respectively. Then AGELIFE = (G1/ T1 + G2/ T2) /2. The smaller this number, the more up-to-date the machinery in a company. |
| **D(H)FDI** | 1 if the company has a foreign direct investor, 0 otherwise |
| **D(H)IMPPR** | 1 if the investor was the most important force in determining changes in the product range;<br>0.5 if the investor and the company's "old" management had roughly the same influence;<br>0 if the "old" management was the main force in determining changes in the product range; |
| **D(H)IMPPM** | 1 if the investor was the most important force in determining changes in production methods;<br>0.5 if the investor and the company's "old" management had roughly the same influence;<br>0 if the "old" management was the main force in determining changes in production methods; |
| **D(H)KNOWH** | sum of the areas in which more know-how is required; if interview partners placed particular emphasis on an area, then this area was counted twice |
| **D (H) 96(7) investor** | The number of functions (out of a maximum of 11) which are catered for by the investor (that is other companies in the acquiring conglomerate) in 1996. |
| **D(H)IMMT** | 1 if the investor was the main force in managerial training, 0 otherwise |
| **D96%EGer** | percentage of total inputs (physical and support services) procured in East Germany in 1996 |
| **H97%Hung** | percentage of total inputs (physical and support services) procured in Hungary in 1997 |
| **D(H)%oldsup** | percentage of current suppliers which pre-date 1990 |
| **D(H)Export 96(7) EurU** | percentage of the company's total output which was sold in the European Union -including West Germany- in 1996(7) |
| **D(H)Δ Total Export** | Total Export 96 minus Total Export 90: the in - (or de)crease in the company's overall export orientation since 1990 |
| **D profit 95** | 1 if the company is profitable in 1995, 0 otherwise |
| **D profit 97** | 1 if the company is profitable in 1995 (97), 0 otherwise |
| **H profit 96** | 1 if the company is profitable in 1995, 0 otherwise |

## Table 2: Functional integration with the investor in companies with FDI[i]

| Company | Personnel | Design | Quality control | R&D | Procurement | Maintenance | Sales | Transporta-tion | Marketing | Customer Services | Computing Facilities |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | I | INV | I | None | I | E (sub) | I | E (sub) | I | give quality guarantees | I |
| D2 | I | None | I | None | I | E | None | I (logistics) E | rely on word of mouth | give quality guarantees | I |
| D3 | I | None | I | None | I | I,E | I | I (logistics) E | I | no separate department | I |
| D4 | I | INV | I | INV | INV | I | I | E | I | I | I, INV |
| D5 | I | I, INV | I | I, INV | I | I | I | I (logistics) E | I | I | I |
| D8 | I | I, INV | I | I, INV | I | E (sub) | I | E (sub) | I | I | INV, E |
| D9 | I | None | I | I, INV | I | I | I | I, E | I, E | I | I, INV |
| | | | | | | | | | | | |
| prop[ii] | 0 | 4/9 | 0 | 4/9 | 1/9 | 0 | 0 | 0 | 0 | 0 | 1/3 |
| | | | | | | | | | | | |
| H1 | I | I | I | I | I | I, E(sub) | I | I, E | I | I | I, E |
| H2 | INV | (I), E | I, INV | I, INV | (I), INV | I, E | INV | E | INV | INV | INV |
| H3 | I | I, (INV) | I, (INV) | I, INV | I, INV | I, E (sub) | I., (INV) | E (sub) | I, (INV) | I | I |
| H4 | I | I | I | I, INV | I, INV | I, E (sub) | I, INV for export only | E (sub) | I, (INV) | I | I, INV |
| H7 | I | I, (INV) | I | I | I, INV | I | I | I, (INV) | I, INV | I | I |
| H9 | I | I, INV | I | I | I | I | I | I | I | I | I |
| | | | | | | | | | | | |
| prop | 1/9 | 1/3 | 2/9 | 1/3 | 4/9 | 0 | 1/3 | 1/9 | 4/9 | 1/9 | 2/9 |

[i] Which activities are at the moment being (I) internally supplied, (INV) supplied by the investor or are being (E) bought from external sources? E(sub) stands for independent external companies which are effectively subsidiaries of the company being interviewed, in the sense that these suppliers have been originally separated out from their customer and still maintain close ties with him, frequently including ownership ties. If the investor is indicated in parentheses, then he plays a clearly secondary role in this area.

[ii] Proportion of companies experiencing some from of involvement by their investor in the area.

## Table 3a: Summary of the East German data on strategic restructuring[1]

| | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | | mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DPRODCH | 3 | 1 | 2 | 2 | 3 | 2 | 1 | 2 | 4 | | 2.2 |
| DPCLOSED (hor) | 2 | 0 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | | 1.4 |
| DPNEW (hor) | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | | 0.77 |
| DΔ horint | -1 | 1 | -2 | -1 | -2 | 0 | 0 | 0 | 3 | | -0.28 |
| DPRODMETH | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 3.5 | 3 | | 1.3 |
| DWORKORG | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | | 0.77 |
| DINVS | 0.2 | 0.08 | 0.014 | 0.29 | 0.97 | 0 | 0.05 | 0.66 | 0.47 | | 0.30 |
| DINVEST | 30 | 2.9 | 1.0 | 40 | 250 | 0 | 10 | 80 | 100 | | 57.1 |
| DAGELIFE | 0.5 | 0.4 | 0.6 | 0.62 | 0.4 | 0.86 | 0.4 | 0.35 | 0.66 | | 0.53 |
| DFDI | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | | 0.77 |
| DIMPPR | 0 | 0 | 0 | 1 | 0.5 | 0 | 0 | 0.5 | 1 | | 0.33 |
| DIMPPM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0.5 | 0.5 | | 0.33 |
| DKNOWH | 4 | 4 | 4 | 4 | 3 | 3.5 | 3 | 3.5 | 2 | | 3.44 |
| D96 investor | 1 | 0 | 0 | 3.5 | 1 | 0 | 0 | 1.5 | 1 | | 0.88 |
| D IMMT | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | | 0.55 |
| D96%EGer | 50 | 50 | 0 | 30 | 0 | 80 | 100 | 30 | 5 | | 38.5 |
| D%oldsup | 8 | 5 | 0 | 70 | 35 | 80 | 17 | 35 | 2 | | 28.0 |
| Dexport 96(West) | 0 | 0 | 75 | 75 | 15 | 7 | 0 | 30 | 95 | | 33.0 |
| DΔ total export | 0 | 0 | 55 | 50 | 10 | -20 | 0 | 20 | 95 | | 23.2 |
| DPROFIT 95 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | | 0.44 |
| DPROFIT 97 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | | 0.77 |

[1] All the variables are defined in Table 1.

## Table 3b: Summary of the Hungarian data on strategic restructuring[i]

| | H1 | H2[ii] | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | | mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HPRODCH** | 1 | 3* | 1 | 2 | 2 | 0 | 4 | 0 | 1 | 2 | 0 | | 1.45 |
| **HPCLOSED (hor)** | 1 | 2* | 1 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | | 0.81 |
| **HPNEW (hor)** | 0 | 1* | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | 0.27 |
| **HΔ horint** | -1 | -1 | -1 | 0 | -1 | 0 | -3 | 0 | 1 | 0 | 0 | | -0.54 |
| **HPRODMETH** | 3 | 2* | 5.5 | 5 | 0 | 1.5 | 6.5 | 4.5 | 3 | 3 | 4 | | 3.45 |
| **HWORKORG** | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | | 0.54 |
| **HINVS** | 0.1058 | 0.3609 | 0.7425 | 0.4490 | 0.3514 | 0.001[iii] | 1.0833 | 0.9649 | 0.001 | 0.1913 | 0.6684 | | 0.44 |
| **HINVEST** | 30.9 | 48 | 75 | 119 | ≈ 200[iv] | 0.22 | 1170[v] | 93.6 | 0.01 | 4.4 | 2780 | | 411 |
| **HAGELIFE** | 0.32 | 0.57 | 0.57 | 0.56 | 0.37 | 0.45 | 1 | 0.54 | 0.44 | 0.6 | 1.2 | | 0.59 |
| **HFDI** | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | | 0.62 |
| **HIMPPR** | 0.5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | | 0.41 |
| **HIMPPM** | 0.5 | 1 | 1 | 0 | 0 | 0 | 0.5 | 0 | 1 | 0 | 0 | | 0.36 |
| **HKNOWH** | 3 | 1 | 4 | 5 | 4 | 0 | 4 | 2 | 4 | 4 | 5 | | 3.3 |
| **H97 investor** | 0 | 6.5 | 3 | 2.5 | 0 | 0 | 2 | 0 | 0.5 | 0.66 | 0 | | 1.26 |
| **H IMMT** | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | | 0.36 |
| **H96%Hung** | 98 | 30 | 35 | 30 | 80 | 70 | 60 | 10 | 20 | 100 | 20 | | 50 |
| **H%oldsup** | 100 | 95 | 25 | 25 | 95 | 80 | 76 | 70 | 20 | 60 | 80 | | 66 |
| **Hexport 96 (EurU)** | 0 | 0 | 10 | 15 | 30 | 5 | 45 | 6 | 0 | 0 | 15 | | 11.45 |
| **HΔ total export** | 0 | 0 | 27 | 5 | 0 | 5 | 25 | 9 | -5 | -12 | 5 | | 5.36 |
| **HPROFIT 96** | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | | 0.58 |

[i] All the varaibles are defined in Table 1.

[ii] All starred values only refer to the Budapest factory visited and do not include H2's factory in Northern Hungary. Consequently the starred values are likely to be biased downwards compared to those which would include both factories.

[iii] Both in the case of H6 and H9 interview partners could not give precise investment figures but indicated that overall investment levels had been minimal. I hence use this value as a proxy for minimal investment figures and then calculate the overall investment figure which would result in such a low investment over sales figure. Consequently, the values given for overall investment in these two companies are also to be interpreted as merely proxying minimal values.

[iv] This is a minimum estimate (and hence biased downwards). Investment has been fairly stable around 65.5 million DM in 1995, 96 and 97, the years for which data is obtainable. I arrive at my estimate for investment between 1990 and 1996 by adding up the investment figures for the two years (1995 and 1996) in this period for which data is available and assuming that investment between 1990 and 1994 was only at about 66 million DM, that is the yearly figure of later years. This approach is likely to bias the overall figure downwards. However, from the interviews my impression is that due to the uncertainty concerning the ownership and future of H5a before 1995 lead to far less investment taking place before 1995 than after. Consequently, assuming that the post 1995 trend of about 65.5 million DM per annum also held before the company's flotation (an assumption which would yield a total investment figure of 393 million DM) is likely to have such a strong bias upwards that I decided to use the lower estimate.

[v] The investment figures for H7 and H8 were calculated using an exchange rate of 1.8 DM per 1US$.

## Table 4a: Correlation matrix for the East German variables[i]

| | DPRODCH | DPCLOSED (hor) | DPNEW (hor) | DD horint | DPRODMETH | DWORKORG | DINVS | DINVEST | DAGELIFE | DFDI | DIMPPR | DIMPPM | DKNOWH | D96 investor | D IMMT | D96% EGer | D%old sup | Dexport 96(West) | DΔtotal export | DPROFIT 95 | DPROFIT 97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DPRODCH | 1.00 | | | | | | | | | | | | | | | | | | | | |
| DPCLOSED (hor) | 0.31 | 1.00 | | | | | | | | | | | | | | | | | | | |
| DPNEW (hor) | **0.59**t** | -0.45 | 1.00 | | | | | | | | | | | | | | | | | | |
| DD horint | 0.20 | **-0.79 ***t** | **0.87 ***t** | 1.00 | | | | | | | | | | | | | | | | | |
| DPRODMETH | 0.41 | -0.22 | **0.56 *t** | 0.35 | 1.00 | | | | | | | | | | | | | | | | |
| DWORKORG | 0.13 | -0.37 | 0.16 | 0.28 | 0.17 | 1.00 | | | | | | | | | | | | | | | |
| DINVS | **0.53*t** | 0.09 | 0.09 | -0.09 | 0.20 | **0.50*t** | 1.00 | | | | | | | | | | | | | | |
| DINVEST | **0.56*t** | 0.24 | 0.02 | -0.15 | -0.03 | 0.40 | **0.94 ***t** | 1.00 | | | | | | | | | | | | | |
| DAGELIFE | 0.27 | 0.18 | 0.28 | 0.16 | -0.13 | **-0.67 **t** | -0.41 | -0.31 | 1.00 | | | | | | | | | | | | |
| DFDI | 0.42 | 0.24 | 0.16 | -0.08 | **0.60 **t** | 0.36 | 0.47 | 0.37 | -0.33 | 1.00 | | | | | | | | | | | |
| DIMPPR | **0.54*t** | -0.21 | 0.35 | 0.31 | 0.35 | 0.44 | **0.57*t** | **0.48*t** | 0.10 | 0.44 | 1.00 | | | | | | | | | | |
| DIMPPM | 0.40 | 0.10 | 0.20 | 0.03 | 0.46 | 0.44 | 0.12 | -0.04 | 0.05 | 0.44 | 0.50 | 1.00 | | | | | | | | | |
| DKNOWH | **-0.54*t** | 0.38 | **-0.59 **t** | **-0.60 **t** | -0.11 | -0.25 | -0.42 | **0.49*t** | -0.07 | 0.16 | -0.46 | 0.18 | 1.00 | | | | | | | | |
| D96 investor | 0.25 | 0.05 | -0.08 | -0.12 | 0.22 | 0.44 | 0.40 | 0.25 | 0.00 | 0.44 | **0.78 **t** | **0.78 ***t** | 0.11 | 1.00 | | | | | | | |
| D IMMT | 0.22 | -0.37 | **0.52*t** | 0.47 | 0.64 | **0.60**t** | 0.13 | -0.10 | -0.19 | **0.60 *nc** | 0.46 | **0.73 **t** | 0.10 | **0.53 *t** | 1.00 | | | | | | |
| D96% EGer | **-0.61 **t** | -0.37 | -0.16 | 0.14 | **-0.48*t** | -0.03 | **-0.58*t** | **-0.57*t** | 0.05 | **-0.83 ***t** | **-0.53 *t** | -0.14 | 0.14 | 0.14 | -0.18 | 1.00 | | | | | |
| D%old sup | -0.13 | 0.05 | -0.27 | -0.22 | -0.42 | -0.23 | 0.06 | 0.03 | 0.46 | -0.39 | **0.22** | 0.12 | 0.16 | 0.44 | -0.16 | 0.27 | 1.00 | | | | |
| Dexport 96 (West) | 0.47 | -0.01 | 0.31 | 0.20 | **0.50*t** | -0.12 | 0.11 | 0.07 | 0.37 | 0.44 | **0.71 **t** | 0.29 | -0.28 | 0.44 | 0.22 | **-0.67**t** | -0.08 | 1.00 | | | |
| DΔ total export | **0.54*t** | -0.10 | 0.43 | 0.33 | **0.58*t** | 0.09 | 0.20 | 0.16 | 0.18 | **0.52*t** | **0.72 **t** | 0.30 | -0.42 | 0.37 | 0.32 | **-0.69 **t** | -0.32 | **0.95***t** | 1.00 | | |
| DPROFIT 95 | -0.22 | 0.11 | -0.27 | -0.17 | -0.46 | **0.48*t** | 0.06 | 0.19 | **-0.61 **t** | -0.06 | -0.46 | -0.18 | 0.08 | -0.32 | -0.10 | **0.31** | -0.37 | **-0.73**t** | **-0.54*t** | 1.00 | |
| DPROFIT 97 | 0.13 | -0.37 | 0.16 | 0.28 | 0.17 | **1.00 ***t** | **0.50*t** | 0.40 | **-0.67 **t** | 0.36 | 0.44 | 0.44 | -0.25 | 0.44 | **0.60 *nc** | -0.03 | -0.23 | -0.12 | 0.09 | 0.48 | 1.00 |

## Table 4b: Correlation matrix for the Hungarian variables[ii]

| | HPRODCH | HPCLOSED (hor) | HPNEW (hor) | HΔ horint | HPRODMETH | HWORKORG | HINVS | HINVEST | HAGELIFE | HFDI | HIMPPR | HIMPPM | HKNOWH | H97 investor | H IMMT | H97% Hung | H%oldsup | Hexport 97 (EurU) | HD total export | HPROFIT 96 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HPRODCH | 1.00 | | | | | | | | | | | | | | | | | | | |
| HPCLOSED (hor) | 0.86***t | 1.00 | | | | | | | | | | | | | | | | | | |
| HPNEW (hor) | 0.27 | 0.12 | 1.00 | | | | | | | | | | | | | | | | | |
| HΔ horint | -0.69 ***t | -0.89 ***t | 0.34 | 1.00 | | | | | | | | | | | | | | | | |
| HPRODMETH | 0.17 | 0.32 | -0.04 | -0.32 | 1.00 | | | | | | | | | | | | | | | |
| HWORKORG | 0.48*t | 0.21 | 0.15 | -0.13 | -0.23 | 1.00 | | | | | | | | | | | | | | |
| HINVS | 0.23 | 0.43*t | -0.30 | -0.55**t | 0.71***t | -0.01 | 1.00 | | | | | | | | | | | | | |
| HINVEST | -0.09 | 0.04 | -0.27 | -0.16 | 0.29 | 0.39 | 0.44*t | 1.00 | | | | | | | | | | | | |
| HAGELIFE | 0.14 | 0.21 | -0.19 | -0.28 | 0.54 | 0.41 | 0.61**t | 0.91[iii] | 1.00 | | | | | | | | | | | |
| HFDI | 0.59**t | 0.46*t | 0.46*t | -0.23 | 0.40 | 0.07 | -0.10 | -0.33 | -0.11 | 1.00 | | | | | | | | | | |
| HIMPPR | 0.62**t | 0.38 | 0.34 | -0.21 | 0.05 | 0.60**t | -0.18 | -0.15 | 0.05 | 0.66 **nc | 1.00 | | | | | | | | | |
| HIMPPM | 0.29 | 0.39 | 0.43*t | -0.17 | 0.17 | 0.13 | -0.05 | -0.24 | -0.14 | 0.64 **nc | 0.50 | 1.00 | | | | | | | | |
| HKNOWH | 0.17 | 0.03 | 0.02 | -0.02 | 0.41 | 0.28 | 0.26 | 0.42*t | 0.39 | 0.26 | -0.03 | -0.08 | 1.00 | | | | | | | |
| H97 investor | 0.58**t | 0.61**t | 0.57**t | -0.32 | 0.16 | 0.13 | 0.16 | -0.18 | 0.06 | 0.54 **t | 0.35 | 0.60 **t | -0.18 | 1.00 | | | | | | |
| H IMMT | 0.64**t | 0.35 | 0.39 | -0.16 | 0.07 | 0.69***t | -0.08 | -0.10 | 0.15 | 0.57 *nc | 0.95 ***nc | 0.46 | -0.01 | 0.40 | 1.00 | | | | | |
| H97%Hung | 0.23 | 0.10 | -0.47*t | -0.30 | -0.38 | 0.05 | -0.42*t | -0.26 | -0.33 | 0.13 | 0.20 | -0.25 | -0.07 | -0.29 | 0.05 | 1.00 | | | | |
| H%oldsup | 0.10 | 0.24 | -0.42*t | -0.41 | -0.47*t | 0.19 | -0.02 | 0.20 | 0.04 | -0.41 | 0.03 | -0.27 | -0.44*t | -0.07 | -0.09 | 0.44*t | 1.00 | | | |
| Hexport 97 (EurU) | 0.52+ | 0.61+ | -0.29 | -0.71+ | 0.30 | 0.28 | 0.61**t | 0.42*t | 0.46*t | -0.14 | -0.09 | -0.20 | 0.38 | -0.05 | -0.01 | 0.06 | 0.14 | 1.00 | | |
| HD total export | 0.15 | 0.51+ | -0.30 | -0.62+ | 0.68**t | -0.31 | 0.75**t | 0.22 | 0.37 | 0.04 | -0.28 | 0.25 | 0.08 | 0.22 | -0.23 | -0.30 | -0.17 | 0.56 **t | 1.00 | |
| HPROFIT 96 | 0.04 | 0.21 | -0.26 | -0.32 | 0.23 | -0.10 | 0.48*t | 0.43*t | 0.27 | -0.31 | -0.37 | -0.50 | 0.40 | -0.36 | -0.45 *t | -0.02 | 0.32 | 0.56 **t | 0.19 | 1.00 |

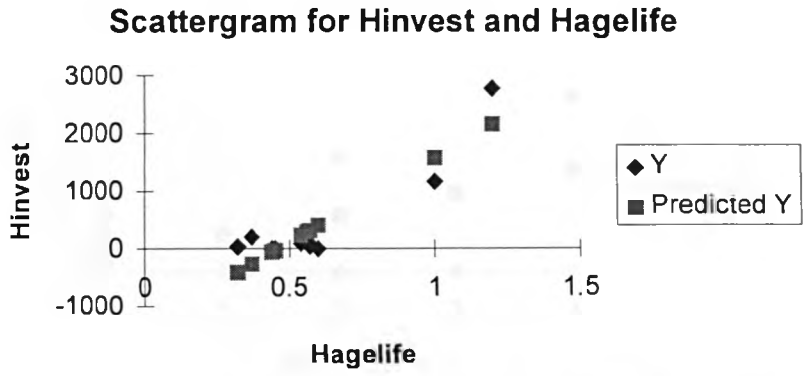
[i] All the varaibles are defined in Table 1. In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-\ 10\%)} = 2.7$, $X^2_{(critical-\ 5\%)} = 3.84$, $X^2_{(critical-\ 1\%)} = 6.63$. We find that the uncorrected $X^2$ statistic is just significant at the 10% level for associations of 0.60 [$X^2 = 2.97$](DIMMT and DPROFIT97; DFDI and DIMMT). Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. Consequently any conclusions drawn on the basis of uncorrected test statistics (the corrected ones are insignificant in this case) have to be seen as indicative only. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^7_{0.15} = 1.11$, $t^7_{0.10} = 1.41$, $t^7_{0.05} = 1.89$, $t^7_{0.01} = 2.99$. We find that in both cases all associations above 0.48 (t= 1.44) are significant at the 10% level, associations above 0.59 (t= 1.93) are significant at the 5% level and associations above 0.75 (t= 3.00) are significant at the 1% level.

[ii] In order to calculate the significance level of associations between two dummy variables contingency tables were used. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-\ 10\%)} = 2.7$, $X^2_{(critical-\ 5\%)} = 3.84$, $X^2_{(critical-\ 1\%)} = 6.63$. The test statistics reported were all obtained by dropping, where appropriate, 0.5 observations. This was done since I have insufficient observations to justify larger than 2x2 tables. The significance levels reported in Table 4b are based on uncorrected test statistics. Unless otherwise stated in this footnote the test statistics obtained using Yate's correction for continuity were all insignificant. Using uncorrected $X^2$ statistics ignores the fact due to the very small number of cases in my data set we will not fulfil the requirement of having at least five observations in each cell of the relevant contingency table. Consequently any inferences drawn from uncorrected $X^2$ values, especially when they are based on simplifying assumptions as in this case, should be interpreted with some care.

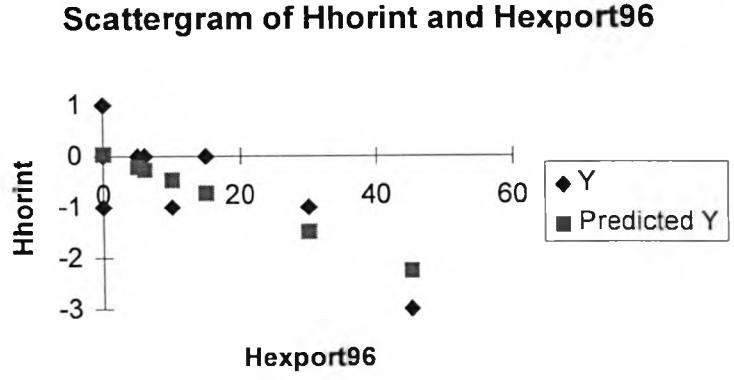
We find that the uncorrected $X^2$ statistic is insignificant for associations of 0.50 [$X^2 \approx 2.25$, significant at the 15% level only]. Associations of 0.57 [$X^2 \approx 2.94$] are significant at the 10% level, associations of 0.64 [$X^2 \approx 4.7$] and 0.66 [$X^2 \approx 5.95$, still insignificant corrected value] are significant at the 5% level. Associations of 0.95 are significant at the 1% level [$X^2 \approx 10$, corrected value of 6.25 significant at the 5% level]. Associations between a dummy and a continuous variable as well as those between two continuous variables are tested using small sample t-tests. The relevant t-statistics are: $t^9_{0.10} = 1.38$, $t^9_{0.05} = 1.83$, $t^9_{0.01} = 2.82$. We find that for both types of associations all correlation coefficients above 0.42 (t= 1.38) are significant at the 10% level, associations above 0.52 (t= 1.83) are significant at the 5% level and associations above 0.69 (t= 2.85) are significant at the 1% level

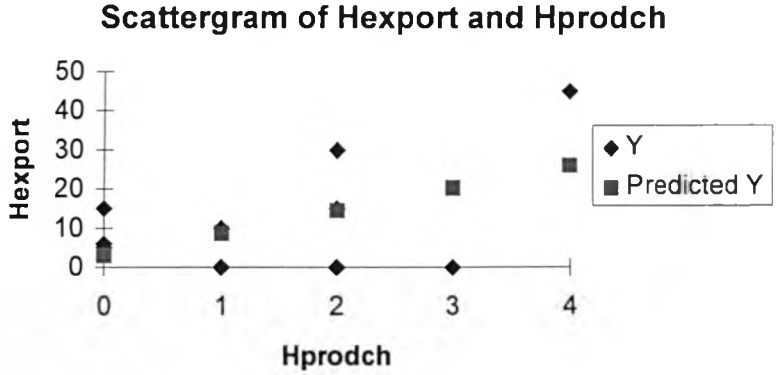
[iii] Throughout scattergrams were obtained for all the major associations in order to check that they are not entirely due to outliers. If a scattergram is not reported it confirmed the significance of the association being examined.

This highly counterintuitive association is entirely due to H11 and H7 who happen to be outliers both in terms of their total investment and the remaining life expectancy of their machinery. If these two companies are excluded we obtain a correlation coefficient of -0.12.




+ these associations are entirely due to H7, who is an outlier both in terms of its export performance as well as with respect to its overall reduction in horizontal integration. If this company is excluded we obtain correlation coefficients of -0.26 and 0.03 respectively.




Scattergram of Hexport and Hprodch
Hexport
50
40
30
20
10
0
0
1
2
3
4
Hprodch
Y
Predicted Y

## Table 5: Summary of the main statistical findings

| Hypo-thesis | East Germany | Hungary |
|---|---|---|
| **1** | YES<br>- foreign investors introduce an above average number of changes to the subsidiaries' product range. These changes are associated with improved profitability and export performance. | NO<br>- there is no evidence that companies with FDI outperform those without<br>- the quality improvements achieved through new production methods seems to be a key factor influencing performance, rather than the introduction of new products |
| **2 & 3** | NO<br>- all associations with FDI are insignificant in this respect<br>- closures are indicative of a managed winding down of a companies' operations rather than of strategic restructuring | NO |
| **4 & 5** | YES<br>- high investment levels are associated with good performance and there is evidence that FDI eases liquidity constraints | Generally NO, with the exception that companies with FDI introduce a relatively large number of changes the subsidiaries' work organisation |
| **6** | YES | NO |

# Chapter 4

# Changing markets: The economic geography of transition and the companies' competitive situation after trade liberalisation


## Abstract

*This chapter examines the changes which have occurred in the companies' forward and backward linkages. Transition induced trade liberalisation is found to have had a profound effect on the companies' supply arrangements, export orientation and competitive situation. Supplier and customer relationships have shown a much greater stability in the Hungarian data. The East German companies have generally deserted their domestic suppliers in favour of pre-existing West German and EU suppliers who are not suffering from the challenges posed by transition. At the same time in their output markets the East German companies themselves have been largely deserted by their customers, be it due to the availability of more attractive substitutes from the West or due to a collapse in East German industrial demand. Both data sets show that a pre-existing exporting capability is a deciding factor in whether a company can meet the supply side challenges posed by transition. Since the rigidities of the previous economic system meant that especially in East Germany few companies had direct experience with foreign markets, extensive and sudden trade liberalisation early on in the transition process is argued to have lead to the destruction of an excessive proportion of East German industry. Hungary arguably provides an example of how gradual but fully credible trade liberalisation provides restructuring incentives without decimating the domestic manufacturing base.*

## Introduction

Companies do not operate in isolation. Hence no study on enterprise restructuring would be complete without considering changes in a company's backward and forward linkages. Transition induced trade liberalisation is likely to affect a company's supply arrangements as well as its export performance and domestic competitive situation profoundly. Using the literature on economic geography as an interpretative framework this chapter examines how in the twenty companies studied between 1990 and 1996

- the geographical distribution of supply arrangements changed (Section 2)
- the geographical distribution of sales changed. In particular I examine whether have there been any noticeable changes in the companies' export orientation.(Section 3)

Acknowledging that trade liberalisation not only gives domestic companies better access to foreign markets, but also foreign companies to domestic ones, the chapter proceeds to examine

- how the companies' competitive situation and domestic market have changed (Section 4)
- the main dimensions of competition and the importance of different regional characteristics for the companies' competitive success (Section 5).

Section 1 provides a survey of the literature which serves as an interpretative framework for the empirical evidence presented in Sections 2- 5. Section 6 concludes by highlighting the main results.

## 1. Literature survey: Trade liberalisation and economic geography

As a consequence of their history of central planning and COMECON orientated trade East Germany and Hungary started the transition process in 1990 sharing many a priori similarities in their likely comparative advantage and underlying production structures. Kornai (1992, p.341ff) and van Brabant (1994, p.165) especially emphasise that trade decisions were bureaucratically controlled and not based on real economic scarcity indicators, world prices or genuine comparative advantage. Trade within the COMECON also followed the logic of bureaucratic co-ordination [Kornai (1992, p. 356)]. The underlying idea of international specialisation lead to severe distortions in locational decisions, giving rise to industries in some countries which probably would not have developed there on the basis of comparative advantage considerations.[1] Prices as well were distorted in COMECON trade, with, for example, Central European countries exporting overpriced manufacturing goods and importing underpriced energy in their trade with the Soviets [Marer (1991, p. 329)]. As part of the policy goal of limiting dependence on the West, many Eastern European countries also sought to restrict international trade with market economies [Hamilton & Winters (1992, p.353)]. Even when official policy was one of export encouragement, however, producers were frequently unenthusiastic about selling to a buyers' market abroad when they enjoyed a sellers' market domestically [Kornai (1992, p. 349)].[2]

[1] Arguably one example is the presence of a relatively large oil refining industry in Hungary.
[2] Hungary's investment drive in the 1980s nevertheless succeeded in raising hard currency exports from $4.4 bn in 1980 to $7bn in 1990 [Amsden et al (1994, p. 104 ff.)].

All these factors contributed to a domestic economy which was both distorted and inflexible in its underlying supply structures as well as sheltered from internal and external competition. In such a context a strong case can be made for trade liberalisation, which can be expected to lead to improved allocative and productive efficiency by, for example, providing competition in previously monopolised domestic markets, exposing domestic production to world prices and allowing firms to obtain better economies of scale and scope due to their increased exports.

Van Brabant (1994, p.167) points out, however, that rapid trade liberalisation can only be expected to lead to such benefits once domestic markets function sufficiently well to allow for flexible adjustments to new demand and supply patterns. He warns that extensive trade liberalisation, if introduced too early in the transition period, "might eliminate an inordinate share of domestic production". On the other hand the question arises whether delayed liberalisation just forestalls the collapse of negative-value added firms[3] and sacrifices the positive restructuring incentives trade liberalisation offers to viable companies in the form of improved price formation and increased competition.

Not only the desirable speed of trade liberalisation is disputed, but also the likely comparative advantage Central European transition economies enjoy. In particular the notion that similarly to Southern Europe, Central Europe's comparative advantage might lie in unsophisticated, low-tech and labour-intensive goods [Neven (1994)] has

been challenged. Amsden et al (1994, p.8), for example, claim that lowering real wages in order to specialise according to factor-price comparative advantage "makes no sense at all in a semideveloped country, defined as already having a broad base of industries, especially mid-tech, and a stock of accumulated human skills". Hamilton & Winters (1992) argue that on the basis of its very high stock of human capital, especially Hungary should become an exporter of sophisticated goods with a high R&D content. Indeed Carlin & Landesman (1997, p.78 & p.92 ff.) conclude that by 1995 the representation of R&D and skill intensive exports in Hungary's exports to the EU was similar to that of overall exports from the rest of the world to the EU.

East Germany experienced very sudden total trade liberalisation with West Germany through reunification. In addition as East Germany and Hungary become increasingly integrated into the EU as well we can generally expect shifts in the spatial agglomeration patterns of economic activity, including the location and export decisions of companies. For example this chapter will show how by 1996 the companies in the Hungarian data set maintained a stronger focus on their domestic sales, while the East German companies have more strongly re-orientated themselves to EU and especially West German markets. In contrast to the 'New Economic Geography' literature[4] considerations based on comparative advantage do not help to explain why two countries which had similar starting points in terms of their comparative advantage might end up on different development paths subsequently. In

[3] Using data from four transition countries and shadow profit rates Hughes & Hare (1994) provide estimates of which sectors might have a negative value-added at world prices.
[4] See Ottaviano & Puga (1998), Martin (1999) and Krugman (1998) for recent surveys.

this context an important difference is that East Germany integrated very suddenly with West Germany, while Hungary has still maintained its own currency and some tariff and non-tariff trade barriers with the EU[5].

In deciding on whether to agglomerate their activities or to disperse more evenly over a region companies face countervailing centrifugal and centripetal forces [see, for example, Krugman & Venables (1990, 1995), Martin (1999), Venables (1998)]. Centripetal forces essentially consist of Marshallian localisation externalities arising from labour market pooling, technological spillovers and intermediate supply and demand linkages [Martin (1999, p.68)].

Assuming increasing returns to scale, market size effects play an especially large role in generating pecuniary externalities between agglomerating firms. This gives companies an incentive to locate in or at least re-orientate their activities towards areas already enjoying good access to large markets.[6] Newly arriving companies generate higher expenditure on the intermediate products produced by already existing firms and agglomeration also leads to transaction cost savings as more inputs can be procured in spatial proximity [Krugman & Venables (1995)]. In addition integration might increase labour mobility across a region, in which case the purchases of the employees of newly arriving firms add to the demand linkages and

[5] For an exposition of the 1994 Europe Agreements between the EU and Poland, Hungary the Czech and Slovak Republics see, for example, Reynolds (1994).
[6] Leamer (1997, p.515 ff.) argues that Central Europe enjoys excellent market access which on the basis of 'distance to GDP' consideration should enable it to reach per capita income levels comparable

market size effects between agglomerating companies [Krugman (1991)]. Empirical evidence surveyed by Brülhart (1998, p.792ff) and Amiti (1998) supports the importance of scale economies, intermediate-good intensity as well as market size effects in encouraging the geographical concentration of production.[7]

This discussion of the factors favouring a process of agglomeration indicates an underlying logic of cumulative causation [Venables (1998, p.4)] or path dependence [Martin (1999, p.69)]: Firms want to locate in a given region because there are already other firms there. It is through the backward and forward linkages with pre-existing companies that positive externalities are transmitted. This also suggests that regions might have to reach a critical mass of industry before agglomeration and learning processes take off [Ottaviano & Puga (1998, p. 722), Porter (1998)]. Allowing such a critical mass to develop might provide a basis for infant industry arguments [Lall (1998, p.67), Porter (1998)].

Agglomerating companies are, however, also subject to centrifugal forces putting a stop on unlimited clustering. Centrifugal forces derive from product and factor market competition as well as from pure external diseconomies such as congestion. All these factors intensify with the number of companies locating in proximity to each other.

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to those of, for example, Austria. He argues that Western European trade barriers act like a 500-mile increase in distance between East and West.

[7] Audretsch (1998) and Morgan (1997) emphasise the importance of information exchange and technological spillovers made possible by proximity, providing hence an incentive for clustering. Porter (1998) similarly argues that geographical concentration occurs because spatial, cultural and institutional proximity serves to amplify many of the productivity and innovation benefits of clustering.

Local product market competition can be circumvented by exporting to markets which are further away, but this incurs trade and transportation costs. Immobile factors and land rents lead to intensifying factor market competition between clustering companies and are likely to be only partially mitigated through the migration of workers from the surrounding regions.

A general result from new trade theory models is that if the trading costs between two regions are gradually reduced the relative balance between centripetal and centrifugal forces shifts over time [Ottaviano & Puga (1998, p.722), Krugman & Venables (1995)]. With high trading costs firms concentrate on supplying their local markets and manufacturing will be evenly divided between the two regions.

As trading costs fall, this increasingly allows for a separation of production and consumption [Venables (1998, p.3)], easing the centrifugal tendencies caused by product market competition. Consequently at intermediate levels of trade barriers we will observe a predominance of the centripetal forces. There will be a tendency for industry to cluster in a core region, deserting what is becoming the periphery. For example Krugman & Venables' (1990) model of trade integration between a large core country and a small peripheral region has the implication that for finite trading costs and increasing returns the core country becomes a net exporter of manufactures, effectively leading to the deindustrialisation of the periphery. In this context Martin (1998, p.760) expresses the concern that European integration might lead to a situation where increasing returns to scale industries are concentrated in the core of

Europe, while the periphery might end up specialising in constant returns to scale industries such as agriculture and low technology industries.

As the number of firms in the core increases, centrifugal forces based on the increased competition for immobile factors will raise their head. Prices for these immobile inputs, for example labour, are bid up in the core, creating a wage differential to the periphery region. As trade costs become small enough, firms will relocate to the periphery region to take advantage of lower factor prices there. Consequently with low trade costs, we should expect a more even distribution of industry across the region to develop, resulting in factor price equalisation in the long run [Krugman & Venables (1995)]. As integration progresses further the presence of immobile factors is crucial in reversing the agglomeration tendencies which characterised intermediate levels of trade costs.

The predictions from these chapters are that as trade costs decrease between two regions, they are likely to start off with a relatively even distribution of industry, progress to a core-periphery structure and eventually end up again with a more even distribution at very low levels of trade costs. A question which still needs to be asked is where clusters are likely to form in the agglomeration phase. Since market size and access considerations are important in determining the scale economies and transportation cost savings a company can obtain, we can expect locations in the centre of a region to be more likely to experience clustering [Krugman (1993)].

Other regional characteristics are also likely to be important: for example a region characterised by a bad infrastructure will suffer from bad market access and is hence more likely to become a peripheral region. Consequently a well-developed infrastructure is considered to be an important tool in regional convergence [Martin (1998, p.758)] and has been found to be an important determinant of foreign direct investment flows [Markusen (1998, p.736)[8]]. Similarly in order to allow companies to benefit from the labour pooling externalities and the knowledge spillovers involved in clustering a core region will also have to offer a pool of highly trained employees [Markusen (1998, p.736), Porter (1998)]. A region which has a rich supply of third-party research institutions such as universities will also be able to provide knowledge inputs to relocating firms, increasing its attractiveness [Audretsch (1998, p.21)].[9]

**The implications of the literature on trade liberalisation and economic geography for companies in Hungary and East Germany**

In 1990 East Germany and Hungary shared many underlying production structures, but arguably the Hungarian economy was less distorted, more decentralised and open as a consequence of the gradualist reform process which started after 1956 and

[8] He also emphasises a minimum threshold of per capita income (consistent with market size considerations) as an important determinant of FDI flows. The fact that FDI is attracted by high growth and robust demand means that it reinforces, rather than corrects, initial differences in regional trends [Kozul-Wright & Rowthorn (1998, p.76)].

[9] One of Martin's (1999, p70ff) main criticisms against the 'New Economic Geography' is that the relevant characteristics determining a region's relative attractiveness are by no way exhausted by the list provided in the preceding paragraphs. On his account economists show a general neglect of the social, cultural and institutional factors involved in spatial economic development. The argument is that since economic activity is embedded in these wider factors, the possibilities and constraints on spatial development are also determined by the networks of trust, co-operation, competition and governance that characterise regions and the clusters they contain [Martin (1999, p79)]. See, for example, Granovetter (1995) for an exploration of the 'social' element in interfirm relations and Nelson (1995, p.78) on the importance of a firm's institutional environment.

accelerated in the 1980s. This makes it likely that many Hungarian companies who had accumulated some experience in, for example, directly dealing with Western customers were in an a priori better position to provide flexible responses to the supply-side challenges posed by transition. The greater rigidity in the East German economy and the extreme form of trade liberalisation it experienced with reunification lead to a situation where "before we were even able to spell market economy we were already being competed to death[10] ". This echoes van Brabant's (1994, p.167) warning that extensive trade liberalisation too early in the transition process can devastate domestic industry.

The literature on economic geography points in a similar direction. East Germany rapidly integrated with a region (West Germany) which already had pre-existing areas with strong industrial agglomeration, such as the Ruhr valley, where companies were enjoying increasing returns to scale as well as localisation externalities. The relative proximity of East Germany to these clusters meant that companies were unlikely to gain access to previously unobtainable markets by re-locating to East Germany. After the collapse of the COMECON trading system the most important new market was East Germany itself, which could easily be served from West German production sites. Market access and market size considerations provided few reasons for maintaining production in East Germany. These arguments suggest two conclusions: West German companies had few reasons to relocate to East Germany and, following the logic of cumulative causation, East German companies had every reason to re-

[10] Interview with the production manager in D4.

orientate their economic activity to West Germany. As would be predicted by Krugman & Venables' (1990) model, East Germany became West Germany's periphery, generating a trend towards deindustrialisation in East Germany. This deindustrialisation[11] entailed a process of dis-agglomeration in East Germany, opening up the possibility that East Germany might loose its 'critical mass' of domestic industry. A likely exception is the construction sector, which due to high transportation costs has an incentive to maintain its East German operations.

As trade costs decrease further one would expect a renewed strengthening of centrifugal forces away from West German clusters, favouring production in East Germany. For such centrifugal forces to set in, however, it is crucial that factor market competition intensifies between companies, increasing the wage differential between the core and periphery. At sufficiently high productivity levels such a wage differential would give East German companies a comparative advantage in terms of factor prices. Unfortunately East German workers are highly mobile between East and West Germany and trade union pressure has meant that after reunification wage levels have rapidly equalised. This means that companies in West German clusters are unlikely to be 'pushed' eastwards due to labour shortages nor are they likely to be 'pulled' by low labour costs[12]. The implication is that the crucial forces evening out spatial disparities in regions with very low trade costs are unlikely to kick in and

[11] See Carlin (1994) for an account of the extent of deindustrialisation in East Germany following reunification.

[12] Nuti (1994, p.452) similarly argues that due to the assimilation of wage levels East Germany still faces "a risk of protracted underdevelopment as German and foreign investors are attracted by central-eastern European countries with much lower wages and similar economic structures."

reverse the core-periphery pattern which has evolved after reunification, leaving the prospects for a reindustrialisation of East Germany rather bleak.

Hungarian industry, on the other hand, has not only benefited from the protection implied by higher trade costs. Hungary as a location has also exerted a 'pull' as a consequence of its low labour costs and extremely highly trained workforce. Consequently Hungarian companies not only had good reasons to stay put in Hungary, but also foreign companies had good reasons to invest there.[13] On the basis of the literature surveyed we would hence expect a much more stable industrial base in Hungary than in East Germany.[14] Due to its favourable location in the centre of Europe and anticipated EU membership, one can expect Hungary to increasingly serve as an exporting base both east- and westwards, especially in sectors such as food processing where capacity is relatively large compared to domestic market size.[15]

This chapter will proceed by examining statistically **questions which arise from the literature surveyed.**[16] With respect to each question I also ask whether there are any significant differences between the East German and Hungarian data. The first question examines changes in the companies' backward linkages, that is in their

[13] One only has to look at Hungary's ability to attract FDI since 1990.
[14] For example both with respect to the forward and backward linkages of the ten Hungarian companies they examine Whitely et al (1996, p.404 ff.) find a relatively limited extent of change.
[15] Interview partners from the food sector not only complained about relatively large overacapacity due to investors' overoptimistic initial demand expectations but also about a fragmentation of production processes due to the different investors' desire to be present in numerous market segments. This fragmentation distroyed the previously existing division of labour in the Hungarian food processing industry and makes obtaining scale economies through exports all the more imperative.

supply arrangements. Trade liberalisation and economic integration both give companies a wider spectrum of suppliers to choose from. The choice criteria companies use in this context and the relative attractiveness of domestic suppliers are of particular interest.

1. How and why has the geographical distribution of supply arrangments changed between 1990 and 1996?

The next two questions arise from the consideration that trade liberalisation both enables companies to export more easily abroad as well as gives foreign companies better access to domestic markets.

2. How has the geographical distribution of sales changed between 1990 and 1996? In particular, have there been any noticeable changes in the companies' export orientation?

3. How has the company's competitive situation and domestic market changed between 1990 and 1996?

In trying to interpret the overall trends found, I will ask:

[16] The literature on economic geography does not easily lend itself to narrowly defined hypotheses/ predictions which are empirically tractable. This might be a contributing factor to the relative scarcity of empirical work in this area [see, for example, Krugman (1998, p.15)].

4. What are the main dimensions of competition? Are companies specialising in low-tech cheap products? How important are different regional characteristics for the companies' competitive success? For example, how important is the availability of a cheap workforce?

The following section deals with changes in the companies' supply arrangements. Section 2.1 provides a description of the geographical shifts which have taken place and Section 2.2 provides qualitative evidence which is of help in interpreting the observed trends.

## 2.1 Description of the changes in the geographical structure of supply relationships

In my **1990** data[17] there were few differences between the Hungarian and East German manufacturing companies' procurement policies.[18] They tended to rely predominantly on domestic suppliers and Eastern European ones. The fact that Hungarian companies seem to have had a overall stronger reliance on EU and world-wide suppliers is notable but not statistically significant.

For 1990 I find that in the complete [manufacturing] East German data set the "average" company[19] procured 79% [66%][20] of its input in East Germany, 8.7% [16%] in West Germany, 11% [16%] in Eastern Europe, 1% [2%] in the EU and no company procured inputs on a world-wide scale. All companies depended to 70% or more on input supplies from the GDR. The only exception is the pharmaceuticals company which procured inputs for medications world-wide through state organisations as there was no significant pharmaceuticals input synthesis in the former GDR.

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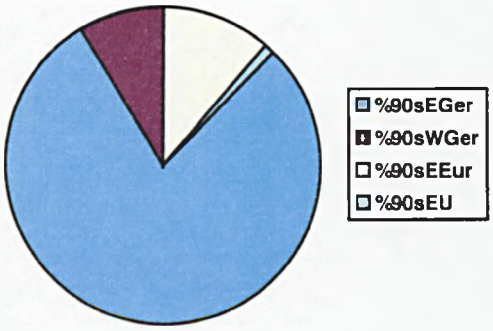
[17] All the procurement and sales figures have been obtained from interviews. Although based on memory, the 1990 figures are reasonably reliable, since in the previous economic order there was not much change in these areas.

[18] The larger number of construction companies in the East German data is significant at the 10% level, as is the high number of food companies in the Hungarian data. These differences in the composition of the two data sets could introduce biases when making comparisons, should I find that either construction companies or food companies systematically differ from manufacturing ones. My data suggests that in their procurement policies food companies on aggregate tend to diverge little from other manufacturing companies. Furthermore there are such large differences within this group itself, that their inclusion is unlikely to lead to systematic biases. Including construction companies can, however, lead to systematic biases, since they face high transportation costs and are hence strongly localised in their operations. These biases will be referred to explicitly throughout this discussion. Table 1 contains more information on this issue.

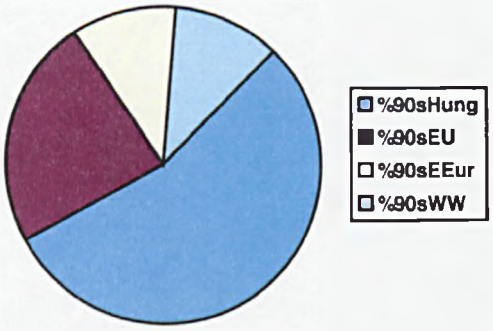
[19] The 'averages' refer to the means of the variables listed in Table 1.

[20] Values in parentheses indicate the mean values obtained for the manufacturing companies only.




The 'average' company in my Hungarian data set procured 54.5% of its inputs in Hungary, 23.6 in the EU (including West Germany) and 10.9% each in Eastern Europe and world-wide.

**Diagram 2 : Geographical distribution of input procurement in 1990, mean values for the Hungarian data**

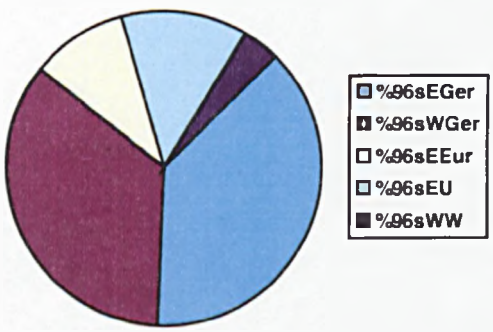



By **1996** significant shifts and differences emerge. Now the 'average' company in my East German data procures only 38.3% of its inputs locally. If we consider the five manufacturing companies only, then this average is as little as 13.5%. West Germany directly accounts for 34.7% [39%] of inputs, but we have to bear in mind that the true

[20] Values in parentheses indicate the mean values obtained for the manufacturing companies only.

role of West German companies is much larger because East German suppliers usually tend to be subsidiaries of West German companies. Input procurement from Eastern Europe has generally all but collapsed. The average company procures 13% [24%] of its inputs in the EU and 3.5% [6%] world-wide. Overall[21] between 1990 and 1996 the 'average' East German company in my data set has reduced input procurement from companies located in East Germany by 41 percentage points [52] and from those located in Eastern Europe by 10 percentage points [14], while increasing its procurement from West Germany by 26 percentage points [23], from the EU by 12 percentage points [22] and from companies world-wide by 3.5 percentage points [6].

Diagram 3: Geographical distribution of input procurement in 1996, complete East German data [22]



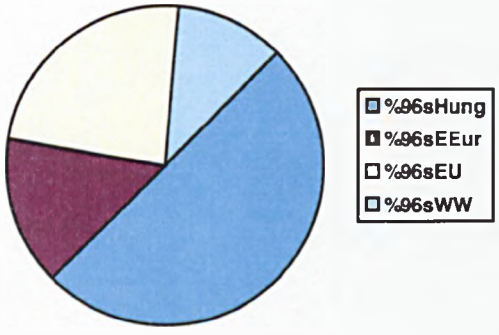

In stark contrast between 1990 and **1996** the pattern of input procurement as changed surprisingly little in the Hungarian data. In my data on average input procurement from Hungary has decreased by 4.3 percentage points to 50.2%. The mean value for

[21] All these statements refer to changes in the percentage of total inputs procured from a given geographical area. See Table 1 for the descriptions of the relevant variables.

[22] Taking the averages for the complete data set introduces two biases: the extent to which companies still rely on Eastern European suppliers is overstated by the inclusion of the strong outlier D3, whose owner, a Slovak steel mill, is also its main supplier. The second bias is that including construction companies biases downwards the extent to which companies have switched away from East German suppliers in comparison with the Hungarian data.

input procurement from the EU remains unchanged, procurement from Eastern Europe increased by 4 percentage points to an average of 15% and input procurement on a world-wide scale has essentially remained unchanged at 10.6%.[23]

**Diagram 4: Geographical distribution of input procurement in 1996, Hungarian data set**




The mean values of the variables indicating the geographical distribution of supply arrangements suggest that from similar starting points by 1996 strongly diverging developments have taken place in the East German and Hungarian data set. Most importantly, the Hungarian companies continue to show a much stronger reliance on their local suppliers.[24] At the same time the fact that East German companies have been predominantly switching to suppliers from West Germany and other countries in the EU, while Hungarian companies have been experiencing a much smaller increase in their reliance on these markets. This results in Hungarian companies procuring

[23] The relative stability of overall procurement is clearly supported by the fact that when I obtained the associations for the percentage of input procured in 1990 and 1996 from a given geographical area, I found associations which were significant at the 1% level in each case between the percentage of inputs procured from Hungary, Eastern Europe, the EU and world-wide respectively in 1990 and the relevant percentages for each geographical area in 1997. Reporting on ten Hungarian case studies, Whitley et al (1996, p.409 ff.) also report a surprising stability in supply arrangements.

in their reliance on these markets. This results in Hungarian companies procuring significantly fewer (at the 5% level) inputs from the EU and West Germany in 1996.[25]

There are few differences between the Hungarian and German companies in the extent of their reliance on world-wide and Eastern European markets in 1996. The general trend has been for companies to reduce their reliance on Eastern European suppliers, but both in the East German and Hungarian data set we have one company each which has strongly increased its reliance on suppliers from this region, leading to very small overall average changes. The East German manufacturing companies have almost all been increasing their reliance on world-wide markets, while in Hungary we observe, from a higher starting point, a more mixed trend which averages out to very little average change in this area. Consequently in 1996 we have a situation were the average East Germany manufacturing company shows the same reliance on world-wide suppliers as its Hungarian counterpart, even though the East German company's reliance on these markets has increased at a noticeably higher rate.

Considering the relatively large changes the East German companies have been making in their supply arrangements it should not come as a surprise that only 28% of their suppliers pre-date 1990. In Hungary this number is significantly (at the 1% level) higher at 64%. Interview partners tended to indicate that in East Germany "old"

[25] The differences in the magnitude of the switch away from domestic suppliers and in favour of EU suppliers are both significant at the 1% level, suggesting that in 1996 Hungarian companies not only rely more heavily on domestic suppliers in total but have also tended to maintain the overall level of their orders by not switching away from the Hungarian market.

suppliers are predominantly pre-existing West-German and EU suppliers, while in Hungary they tend to be domestic suppliers.[26]

## 2.2 Searching for the driving forces behind these geographical shifts in supply arrangements

To examine the driving forces behind the diverging geographical shifts in greater detail I obtained qualitative data on a) why companies stopped dealing with (domestic) 'old' suppliers, b) whether they think that there are any significant differences between domestic suppliers and those in the EU / West Germany and c) on which future developments they anticipate in their supply arrangements. All the answers are summarised in Tables 2a & b.

The East German interview partners indicated that the main reason for abandoning pre-existing East German supply relationships, other than that the supplier goes out of business[27], is that supplies were not up to scratch as far as quality requirements[28] and, less frequently, price competitiveness[29] go. The response to such problems has generally been to discontinue pre-existing supply arrangements and to turn to suppliers from the EU and West Germany. The companies continuing to rely on East

[26] When I obtained associations for the percentage of old suppliers a company has in 1996 and its supply arrangements in 1990 I found that East German companies which have a large number of old suppliers already procured a relatively high proportion of their inputs from the EU in 1990 (significant at the 5% level). For the Hungarian data I found that companies with a large number of old suppliers showed a greater than average total reliance (significant at the 10% level) and increase in their reliance on Hungarian suppliers (significant at the 10% level).
[27] This factor is explicitly mentioned by D3, D6, D8, D9.
[28] This is mentioned by D1, D2, D3, D4, D5, D6, D8.
[29] This is mentioned by D7, D8.

German suppliers are predominantly construction companies. In this case it is clearly transportation cost consideration which maintain the East German suppliers' competitiveness.

Both Hungarian and East German companies turning to EU suppliers indicated that they are highly concerned about the quality of their inputs and hence willing to forgo the transportation cost savings offered by domestic supplier, confirming that quality is an area where many domestic suppliers still have problems. Interview partners also suggested that world-wide suppliers are mainly sought out on the basis of price. However, the companies searching out world-wide customers do not tend to procure homogenous goods, which could be obtained in greater proximity at a transportation cost saving but rather it is customers buying idiosyncratic products who are searching for a good price from world-wide suppliers[30].

When I asked Hungarian interview partners for the main reasons behind abandoning "old" Hungarian suppliers, insufficient product quality is mentioned by seven companies[31] and unreliability and lack of punctuality is mentioned by six companies[32]. On the other hand, uncompetitive prices and bankruptcy are only pointed out by two companies[33].

[30] This point was made, for example, by the procurement managers in both the pharmaceutical companies D5 and H4.
[31] H1, H2, H3, H5, H6 H7, H10
[32] H2, H3, H5, H6, H8, H11
[33] H2, H10 and H3, H11 respectively. Far more common are stories about problems which can be termed transition specific: Bankruptcy (H3, H4, H11), an inability to agree on payment methods (H3), opportunism (H4, H11), financial instability on the side of the supplier or customer (H6, H7) and an inability to adjust to the customer's new demands and product range (H7, H9, H10) all feature.

Next I asked interview partners whether in their opinion there are significant differences between West and surviving East German/ Hungarian suppliers. As Table 2a indicates the general answer was that the surviving East German suppliers are not significantly different. However some companies perceive differences which favour East German suppliers: Interview partners in D5 refer a sense of solidarity, while the need to build a good reputation induces the East German suppliers of D6 and D8 to be more co-operative and flexible than West German ones. D9 claims that East German suppliers are better than West German ones because they have more modern machinery and production methods.

On the other hand when I asked Hungarian interview partners whether there remain any generic differences between domestic and foreign suppliers in 1997, companies tended to give an affirmative answer. Most frequently interview partners claim that some of the quality problems experienced in the initial phases of transition still persist. At the same time, however, the general tenor is that Hungarian suppliers are reaching Western standards fast and that, given that they are financially stable and have up-to-date technology, they offer relatively price competitive and, due to their proximity, also flexible and accommodating business partners.

To conclude this section I enquired how supply relationships were expected to change in the medium-run[34]. East German interview partners generally indicated that the structure of supply relationships is not expected to change significantly in the near future. If anything companies tend to aim at consolidating their relationship with a set of core suppliers (D5, D7, D8, D9). Thus the structure of the new supply arrangements, which are based on the West German and EU supply networks to which especially the East German companies receiving FDI have gained access to, is expected to consolidate itself without any major structural shifts. Consequently we cannot expect a greater reliance on East German inputs to develop in the near future.

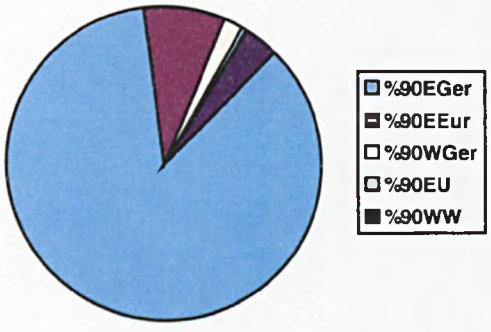
When I asked Hungarian interview partners how they expected the supply arrangements in their company to develop in the next five years, the most frequently cited aim was to develop of a set of core (frequently Hungarian) suppliers with which the company was hoping to develop long-term relationships offering the additional non-price benefits of greater co-operation.[35]

[34] Tables 2a &b summarise the answers.
[35] H2, H3, H4, H6, H11. In this context it was frequently claimed the current level of economic uncertainty and instability forces the company to make contracts of a sub-optimal length (that is they are shorter than would be desirable given a more stable environment) which entail large re-negotiation costs.

**3. How has the geographical distribution of sales changed between 1990 and 1996? In particular, have there been any noticeable changes in the companies' export orientation?**

I find that in **1990** the 'average'[36] **East German** company was heavily focused on its domestic market, selling 85% of its output locally and generally exporting, if at all, to Eastern Europe[37]. West Germany and the European Union accounted for as little as 1.8 and 0.7% of sales on average.

**Diagram 5: Geographical distribution of the average East German company's sales in 1990**

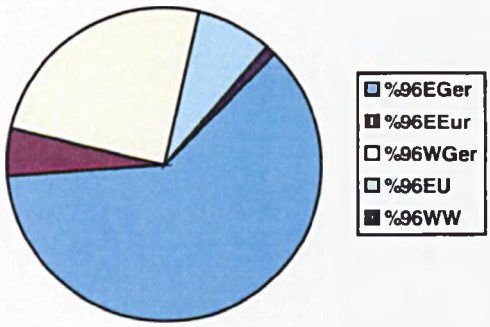



By **1996** the geographical distribution of sales has shifted quite dramatically. The average company now sells only 61.6% of its total output in East Germany and exports 38.3 %. This constitutes an average net increase[38] in exports of 23.3 percentage points between 1990 and 1996. The most important export markets are now West Germany[39], accounting for 24.6% of sales, followed by the European

[36] Throughout the 'averages' refer to the means of the variables listed in Table 4a & b.
[37] Table 5a confirms this: in 1990 there is a negative association [-0.77, 1% level] between the proportion of sales a company realises in East Germany and those it exports to Eastern Europe. Furthermore exports to Eastern Europe are associated at the 1% level [-0.77] with total exports, while the associations between total exports and all other geographical areas are insignificant.
[38] All these statements refer to changes in the percentage of total sales realised in a given geographical area. See Table 3 for the descriptions of the relevant variables.
[39] Although after reunification sales to West Germany do not cross country borders, I will still refer to them as exports in order to be able to compare the geographical distribution of sales in 1990 with that in 1996 using the same categories.

Union (8.3%), Eastern Europe (5.3%) and the rest of the world (1.1%)[40]. Interview partners indicated that breaking into the West German market was a matter of survival for all companies who did not have a fairly captive pre-existing export market due to a fairly inelastic demand (as is the case in pharmaceuticals) or who are localised in their operations due to high transportation costs (as is the case in the construction business).

**Diagram 6: Geographical distribution of the average East German company's sales in 1996, complete data set**



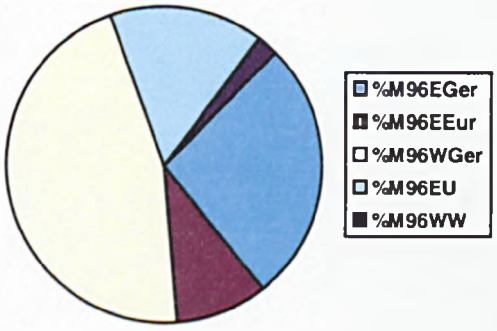

These overall figures hide even greater changes in the manufacturing, rather than construction, sector. The average of output sold in east Germany is only 25% for the manufacturing companies in 1996, down from 80% in 1990. This constitutes an increase of 55 percentage points in net exports for the average manufacturing company in my German data set.[41] The average manufacturing company now exports

[40] The new relative importance of different export markets is reflected in Table 5a: Companies which in 1996 sell a small proportion of their output in East Germany are strongly focused on West Germany instead [-0.91, 1%], secondarily on the European Union [-0.63, 5%] and thirdly on the world-wide market [-0.56, 10%]. Increases in exports are associated with increased sales in these three markets, especially the West German one (significant at the 1% and 5% level respectively).

[41] Any statistical trends which are specific to the manufacturing sector are captured by the manufacturing dummy in Table 5a which confirms that manufacturing companies have experienced above average reductions in the proportion of sales realised in East Germany [-0.74, 5%], strong increases in the proportion of sales going to West Germany [0.68, 5%], reductions in the proportion of

43% of its total output to West Germany (an increase of about 40 percentage points since 1990), 15% to the European Union (up from 0.7%) and 9% to Eastern Europe (down from 14%). The proportion of output being sold world-wide is essentially unchanged at 2%.

**Diagram 7: Geographical distribution of the average East German manufacturing company's sales in 1996**




Associations found in Table 5a suggest pre-existing sales to West Germany and the EU were central in enabling companies to expand their sales in Western markets.[42] Eastern European markets have played no statistically discernible role in absorbing sales which were re-directed from the East German market after 1990. If anything there has been a trend for a retrenchment for the Eastern European market: companies which had high exports to Eastern Europe are likely to have reduced these by 1996 [-

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sales realised in Eastern Europe [-0.55, 10%] and increases in the proportion of sales going to the European Union [0.57, 5%].

[42] Companies which exported to West Germany in 1990 already have found it easier to reduce their overall dependence on the East Germany market by 1996 [ -0.57, 10%]. The Furthermore, the higher the proportion of sales a company realised in West Germany in 1990, the higher the total sales it realises there in 1996 as well [0.71, 5%] and the higher the increase in the company's West German sales [0.65, 5% level]. In addition it appears that experiences gained in the European Union were conducive to breaking into the West German market by 1996, both in terms of the total percentage of sales going to this market [0.59, 5%] and of higher than average increases in these sales [0.58, 5%].

0.62, 5%] and companies without previous experience in the region have not entered Eastern European markets between 1990 and 1996 [0.95, 1%].

When examining changes in the **Hungarian** companies' product markets find that already in **1990** the average company exported 35% of its total output. Even the civil engineering company, H10, exported 13% of its output by winning infrastructure projects in the Soviet Union and Libya.[43] Eastern Europe was the most important export market with on average 19% of total sales, with the Soviet Union typically accounting for the lion's share in this category. The European Union and the world-wide market took similar shares with 8% and 9% of total sales respectively. A comparison of these 'averages' with those found in the East German data suggests that by 1990 Hungary's greater tradition of openness and gradualist reform resulted in Hungarian companies noticeably less output domestically and exporting significantly more to the EU (significant at the 5% level for the complete data set and at the 10% level for the manufacturing companies[44]) and world-wide (significant at 10% level).

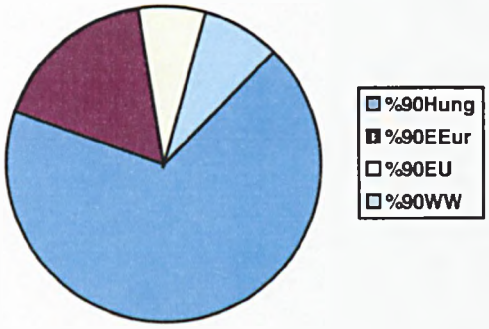
Table 5b indicates companies with exports to the European Union are also likely to have exported world-wide [0.72, 1%] in 1990. This suggests that my data contains a group of companies which specialised in exporting to the European Union and world-

[43] Some of the lowest exporters can be found in the sweets' industry. H2 and H3's main problems seemed to have been that in 1990 they were producing goods which were generally of an inferior quality to that acceptable on Western markets but which were of a superior quality and crucially higher price than sweets produced by local companies in potential Eastern European export markets. H8 (packaging materials) faced similar problems.

[44] These significance levels relate to t-tests on the means of pairs of country-specific variables.

wide (especially H5 and H7), rather than to COMECON countries (as H1, H6, H9, H10).[45]

**Diagram 8: The geographical distribution of the average Hungarian company's sales in 1990**



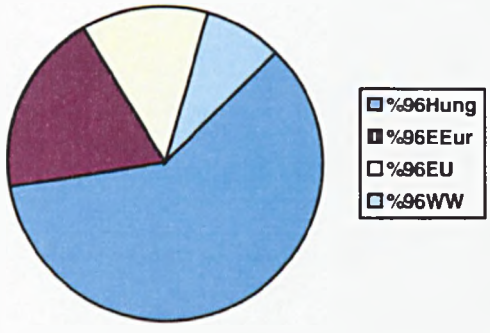

By **1996** there have been significant changes in the two countries' relative comparative export orientation resulting in the observation that the average Hungarian manufacturing company realises a much larger proportion of total sales domestically (60% as compared to 25%, significant at the 10% level). These comparatively high domestic sales for the Hungarian companies are reflected in their significantly lower exports in general and exports to the EU (including West Germany: 12% in the Hungarian data and 58% in the East German one, significant at the 10% level).[46]

[45] Only H4 exported in even proportions to Eastern Europe on the one hand and the EU and world-wide markets on the other.

[46] No statistically significant differences emerge in the manufacturing companies' exports to Eastern Europe and world-wide. The East German companies have experienced significantly greater increases in their total exports and reductions in the proportion of output sold domestically (both significant at the 1% level). The relatively larger increases in exports are mainly due to the East German companies' strong reorientation to the West German market (significant at the 5% level).

To the extent that the Hungarian companies have been increasing their exports this has been done by re-directing sales from Hungary to the European Union[47]. Consequently domestic sales fall on average 5 percentage points to 60% of total output. In contrast to East German interview partners none of the Hungarian companies complains about a sustained fall in the overall volume of domestic demand, although the food industry tends to find fault with smaller than anticipated demand growth.[48] Overall average total exports increased by 5 percentage points to 40% of output.[49] Exports to the EU increased by an average of 4 percentage points to 12% of total output, while world-wide sales have been overall stable.

**Diagram 9: The geographical distribution of the average Hungarian company's sales in 1996**




Sales to Eastern Europe increased by an average of 2 percentage points to 21% of total output. In this case it is important to distinguish between sales going to the former Soviet Union and those going to Central Europe. Sales to the former Soviet

[47] In 1996 high sales to the European Union are associated with high world-wide exports [0.81, 1%], high falls in domestic sales [-0.87, 1%] and also with high growth in exports in general [0.54, 5%] and to the EU in particular [0.66, 5%]. It is worth noting that not only was a company's export orientation statistically insignificant in determining whether a company received FDI after 1990, but also whether a company had FDI or not seems to have been entirely immaterial in determining subsequent changes in the geographical distribution of its sales.

[48] The extent to which companies face increased competition and hence smaller residual domestic demand curves is going to be discussed later on.

this problem). My data suggests that the world-wide markets have been playing an important role in absorbing sales displaced from the Eastern European market [-0.71, 1%].

On the other hand some companies have been experiencing dramatic increase in sales to other transition economies in Central Europe. This is especially true of companies in the food and the related packaging industry (H1, H3, H8). Their previous competitive disadvantage has turned into a competitive advantage as income levels rise in Central Europe for a significant proportion of the population. People are now willing to pay a higher price for better quality products, but many are not willing to pay the extra it takes to purchase, for example, sweets made by western, rather than the relatively cheaper, Hungarian companies. The interviews indicate that many managers are increasingly thinking in regional terms which typically include the Czech Republic, Poland, Slovenia, Austria and Switzerland rather than in historic categories.

Associations found in Table 5b support the impression of a general persistence of historical trends: companies which were relatively strongly focused on the Hungarian market in 1990 remain so in 1996[50], while a high export orientation in 1990 is associated with high exports in 1996 [0.93, 1%]; companies which have a high export orientation to Eastern Europe in 1996 have historically sold a high proportion of their

[50] The percentage of output sold in Hungary in 1996 is positively correlated with the percentage of output sold domestically in 1996 [0.93, 1%] and negatively associated with the 1990 levels of exports

output in this market [0.88, 1%]; companies which have high exports to the EU in 1996 also did so in 1990 [0.96, 1%]; companies which had a high world-wide export orientation in 1996 had both higher than average world-wide exports [0.68, 5%] and exports to the EU [0.72, 1%] in 1990.

A remaining question is how the geographical distribution of a companies' sales affects its probability of being profitable. Table 5a suggests that in 1995 a high focus on the East German market[51] was associated with higher profitability [0.64, 5%], a trend which is insignificant by 1997. Similarly the trend that high exports [-0.64, 5%] are associated with lower profitability becomes insignificant by 1997. The negative results achieved by export orientated companies in 1995 are mainly due to a strong negative association between profitability and exports to West Germany [-0.66, 5%] on the one hand and to the European Union [-0.56,10%] on the other. A possible explanation of these trends is that in 1995 we still have a situation where:

1. a residual inelasticity in demand due to "patriotism" or historic factors can cushion some East German companies (especially D5, D8 and D4) in the short-run before entrants can fully affect their market share and profitability while
2. other companies are experiencing the medium-run costs of trying to break into fairly saturated and sometimes collusive West German and European Union markets. The frequently strong demand decline in the traditional East German and East European markets usually occurred much faster than companies were able to

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to Eastern Europe [-0.64, 5%], to the European Union [-0.46, 10%], exports world-wide [-0.73, 1%] and exports in general [-0.93, 1%].

break into new markets. Consequently many interviewees indicated that they spent the first few years of transition trying to break into unwelcoming Western markets while having lost much their traditional sales outlets.

It seems that by 1997 the companies which have strongly refocused their sales westwards have managed to sufficiently overcome these entry costs and to increase their sales in these markets to be no less profitable on average than the companies which have experienced smaller demand declines and hence have restructured the geographical orientation of their sales less.[52]

The Hungarian data supports the importance of a pre-existing exporting capability. I find that companies which already sold a high proportion of their output in the EU [0.57,5%] or world-wide [0.55, 5%] in 1990 are more likely to be profitable than average in 1996. High sales in the EU in 1996 are also positively associated with profits [0.56, 5%]. A good export performance to EU markets not only indicates that the company is producing internationally competitive products but also suggests that these companies have been better equipped to meet the challenges posed by transition.

[51] When I obtained the relevant associations I found that the geographical distribution of input procurement tends to be generally insignificant with respect to a companies' relative performance.

[52] By 1997 only two companies are not profitable, namely D6 and D3. Their problems are industry specific and the associations found in the Dpr97 column reflect the average (usually of one very high and one very low value) of the entries for D6 and D3 rather than trends they share in the geographical distribution of their sales.

## 4. How has the company's competitive situation and domestic market changed between 1990 and 1996?[53]

This section examines the extent to which increased market access by western competitors affected East German and Hungarian companies. Table 4a indicates that in **1990** almost all of the **East German** companies, with the exception of the pharmaceuticals company, were local monopolists. On average their products covered 89% of the local market. By 1996 each company's market share has dramatically dropped by 74% on average to only 15%. High market shares in 1990 are associated with a greater decrease by 1996 [-0.75, 1%]. This suggests that the more monopolised a sector was, the more competition and entry (in the form of 'imports') it has attracted upon reunification.

Companies which had a strong export orientation (to Eastern Europe) before and after 1990 have tended to experience the smallest decreases by **1996** [0.65, 5%], mainly because they had smaller domestic market shares to start off with [-0.64, 5%]. These trends especially hold for manufacturing companies. One possible reason is that (West German) entrants might well have faced smaller entry costs into the construction sector[54], which has seen an almost immediate transfer of the West

[53] In the East German data I again consider East Germany, rather than re-unified Germany, to be 'domestic' in order to be able to compare data for 1990 with that for 1996. All the companies interviewed clearly distinguished between West- and East German sales and market shares.

[54] If we assume that many West German manufacturing companies had excess capacity in 1990, then they could simply transport their finished products to the East German market, so that the capital costs of entry are not necessarily higher in manufacturing, although manufacturing is more capital intensive. However to realise sales in the construction sector one merely has to win contracts and one does not require a network of, for example, local sales outlets and distributors. In the construction sector one also has to convince only one customer (usually the local or state government) rather than the general

German market structure to the East German market. Any East German companies which survive in the construction sector do so as the subsidiaries of a Western firm, that is because in this instance entry was via acquisition, rather than by driving the local competitor out of the market.[55] Furthermore, when giving construction contacts a company's solvency and hence ability to finished the project is an important consideration, a factor which will have operated against East German companies without financial backing from the West.

The smallest drops in market share were suffered by the pharmaceuticals company D5 (who had a small market share to start off with and is somewhat protected by a low demand elasticity for its products) and the turbine manufacturer D8 who has found a niche in servicing old turbines which have it has built in the past. D9 has seen its entire market collapse together with the East German car industry and D1, D2, D7 are left with very small residual markets after a large number of financially solvent West German competitors have entered the East German construction sector. D6, who also suffered a fall in market share of over 90 percentage points, is plagued not only by a large number of financially strong competitors as the other construction companies as well, but in addition by the fact that these competitors are operating a tacit cartel in a saturated market.

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public to buy one's end-product. Entry into the manufacturing sector consequently tends to necessitate advertising outlays, which add to the net costs of entry.

[55] I encountered abundant anecdotal evidence of the latter strategy. Interview partners also repeatedly claimed that some of the former East German companies had been merely acquired to be ruined, i.e. that acquisition is frequently just another version of a strategy to drive out the local competitor.

Given these considerations it is not surprising that almost all companies claim to face a large number of competitors. The exception is D9 whose parent is part of a West German duopoly. All companies claim that their main competitors are larger and solvent companies. In addition 4 out of 9 companies also face important small competitors.

The geographical location of the companies' main competitors reflects their sales orientation. Eight out of nine companies claim that important competitors are located in West Germany. The only exception is D3, who is a member of a West German cartel and is hence only concerned about non-German competitors. The five companies which claim that they also face important East German competitors are usually quick to add that these East German companies are subsidiaries of West German parents. Three companies face important competitors who are located in Eastern (or rather Central) Europe and only one company (D6) is touched by competition originating from the rest of the world.

Table 5a suggests that companies which in 1996 are more likely than others to be concerned about East German competitors sell a high proportion of their output in East Germany [0.60, 5%] and a smaller than average proportion in West Germany [-0.75, 1%]. All the companies which are concerned about East European competition have experienced above average falls in the sales they realised in Eastern Europe [-0.76, 1%]. This indicates that overall the East German companies in the data set are not very successfully defending their traditional export markets in Eastern Europe.

Table 4a indicates that in **1990** the average company in the **Hungarian** data set had a 60% market share.[56] By **1996** the average market share has fallen to 56%, that is by 4 percentage points only. Several companies (H3, H7, H8) have even experienced increases in their market share. [57] Transportation or physical input cost [58] considerations play an important import deterring role in almost all these cases. In addition interview partners in all the Hungarian companies indicated that they enjoy a net labour cost advantage, even after differences in their relative productivity have been taken account of. These differential cost conditions faced by domestic firms and importers means that in many sectors entry using a strategy of cost leadership is not a feasible strategy. The alternative is for a potential importer to offer a higher quality product at a price differential which covers his higher production and transportation costs. The Hungarian companies which have increased their market share have all drastically improved the quality of their products, making this second entry strategy unattractive as well.[59]

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[56] This is not significantly different from the 'average' market share prevalent in the East German data for 1990.

[57] H3 now focuses on chocolate bars which are smaller (and cheaper) than Western ones. Like this people can still treat themselves and their children without having to spend much money, a fact which makes these bars especially popular with lower income groups and with children spending their pocket money. H8 has increased the quality and range of its products to an extent which makes importing more packaging materials unattractive.

[58] These factors are especially important for H5, H11 and H1.

[59] Table 5b suggests that Companies which have a high domestic market share in 1996 rank the importance of the quality of their products very highly [-0.43, 10%]. In addition companies which have been increasing their domestic sales have been emphasising quality [-0.48, 10%] rather than price [-0.56, 10%].These observations are consistent with the assumption that increasing product and service quality is an important way of inhibiting entry from abroad in sectors where entry with a strategy of cost leadership is not feasible.

The largest fall in market share was suffered by H4 who, like all its Hungarian competitors, has been suffering from the effects of entry by multinationals into the pharmaceuticals market. The fall in H10's and in H11's market share are also a direct consequence of entry form abroad. Only H2 claims that newly established (smaller) Hungarian entrants into the "small sweets" (that is candies, small chocolate bars etc.) market have been affecting its sales.

Even though companies have generally maintained their market shares [0.89, 1%] this by no means entails an absence of competitive pressure with 58% of the companies interviewed claiming that they face small competitors as well as large ones and only one company, H1, claiming that it does not face any large competitors at all.[60] Although companies with a high market share in 1996 tend to have fewer than average number of competitors [-0.53, 5%][61] and are less likely to face domestic competitors [-0.59, 5%], they are also concerned about the price [-0.42, 10%] and quality [-0.43, 10%] of their products. In conjunction with the good export performance of these companies[62], this suggests that in a small and reasonably open economy a high domestic market share does not entail a lack of international competition.

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[60] Only three companies (H1, H5, H7) claim that they face few or no competitors. In all three cases this constitutes a continuation of a pre-existing monopoly situation in a market where the capital requirements for domestic entrants are prohibitive and where foreign entrants are deterred for the reasons discussed above.

[61] Table 5b suggests that companies which in 1996 claim to be facing a large number of competitors tended to be strongly focused on the Hungarian market [0.52, 10%], to be exporting less to the European Union [-0.60, 5%] and world-wide [-0.45, 10%].

[62] Table 5b also suggests that both in 1990 and 1996 companies which had a large market share in 1990 tend to sell a below average proportion of their overall output in Hungary [-0.49, 10%] and have high

Since the Hungarian companies have been increasing their exports to the EU and most foreign entrants into the Hungarian markets tend to originate from the EU as well it is not surprising that we find in Table 4b that nine out of the 11 companies interviewed state that they have important competitors who originate from the EU. The second most frequently cited geographical origin of competitors is Hungary (cited six times). Especially companies from the food processing industry tend to claim that their main competitors are Hungarian subsidiaries of western companies [0.56, 5%]. Four out of 11 companies indicate that they face important competitors originating from outside Europe and only H8 locates important competitors in Eastern Europe.

The observation that Hungarian companies with a high market share in 1990/6 are more likely to be profitable is only weakly significant [0.49/ 0.48, 10%]. That this association is not stronger is likely to be due to fact that it is the companies which are large domestically which are also tend to have a good export performance. Consequently they frequently face competition in their foreign markets, even if they have some monopoly power domestically. Consistently with this interpretation I find that in general companies which face a large number of competitors are less likely to be profitable [-0.56, 5%]. Similarly in 1997 an East German companies' profitability is adversely affected by Eastern European [-0.76, 5%], EU [-0.76, 5%] and world-wide competitors [-0.66, 10%].

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export levels [0.49, 10%]. Due to the fact that Hungary is a small market being big in terms of output

The next section is going to explore the finer details of the East German and Hungarian companies' competitive situation. By examining the main dimensions of competition and importance of different regional factors I am trying to find indicators of the companies' implicit comparative advantage.

**5. What are the main dimensions of competition? Are companies specialising in low-tech cheap products? How important are different regional characteristics for the companies' competitive success? For example, how important is the availability of a cheap workforce?**

Interviews in which East German managers were asked to describe their company's main competitive advantages and challenges generally suggested that the companies focus on providing high (but not usually cutting edge) quality at lower prices than their main competitors.[63] Consistently they are very concerned about achieving further product and service quality improvements[64] and cost reductions[65]. Price wars and the acceptance or lack of it by West German cartels are also recurring themes[66]. In stark contrast the Hungarian case studies many East German interview partners also complained about the negative image of East German products and a lack of brand loyalty in domestic consumers.[67]

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frequently entailed not just a large domestic market share but also a significant export orientation.

[63] Explicitly mentioned by interview partners in D1, D2, D3, D6, D7, D8. There is almost universal agreement that punctuality is secondary and design relatively unimportant. See also Table 4a. The variables capturing the importance of different dimensions of competition yield means which are not significantly different for the two country data sets.

[64] D3, D4, D5.

[65] D7, D8, D9

[66] These comments are especially prevalent in the building (D1, D2, D6, D7) and steel processing sectors (D3).

[67] One East German interview partner expressed this sentiment by stating that "In the beginning you could not even sell milk from East German cows to East German consumers." (Interview with the personnel manager in D4). On the other hand especially interview partners in the Hungarian food

Table 5a supports the importance of price factors in the East German companies' competitive success by indicating that obtaining lower wage costs are especially important to companies which ascribe a high importance to price competition [0.50, 10%] and in 1996 export a high proportion of their output to the EU [0.63, 5%] and world-wide [0.50, 10%].

Companies which had a high export orientation in 1990 are less worried about quality, punctuality and design (all significant at a 10% level), suggesting that a high export orientation forced these companies to approach international standards with respect to these dimensions of competition. Nevertheless, companies which export a high proportion of their output in 1996 are very quality conscious [-0.55, 10%]. A focus on product quality tends to be associated with a focus on punctuality, which reflects the quality of the services provided by the company [0.67, 5%].

Companies which have been increasing their exports generally [0.72, 5%] and especially their sales in the European Union [0.72, 5%] and world-wide [0.86, 1%] tend to view high design standards as less important determinants of their success. This suggests the possibility that companies have been finding it easiest to increase their exports if they are producing products which are of a homogenous design

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processing industry regularly recounted stories in which investors were forced to re-introduce domestic brands after hastily discontinuing them in favour of their own Western ones. Strong brand loyalty and an intimate knowledge of an idiosyncratic market were explicit mentioned as a competitive advantage in H1, H2, H4.

internationally, which means that once the international standard (in processed steel, turbines or gears) is reached, the company does not has to compete along this dimension.

Common themes also emerged form interviews in which Hungarian interviewees were asked to describe their company's main competitive advantage and challenges: again successful Hungarian companies tend to focus on providing Western level quality and service at lower prices than multinational companies.[68] Further cost reductions[69] and quality improvements[70] are the main internal changes with which the companies are hoping to improve their competitiveness.[71]

The main message is that the Hungarian companies tend to mention western standard quality at lower prices as the main determinant of their success, rather than any of these factors individually. Three companies (H5, H8, H10) even rank quality above prices, something only the duopolist D9 did in the German data. Punctuality again figures a lot lower than either price or quality. Nevertheless when exporting to the EU [-0.54, 5%] and world-wide [-0.50, 10%] Hungarian companies are primarily

[68] This strategy is explicitly referred to by H1, H3, H4, H5, H8, H11.
[69] H3, H5, H6, H10, H11
[70] H7, H9
[71] Some companies (H1, H4) wish to expand their product range and to improve their marketing approach (H2). The companies tend to suffer from transition specific external problems: The lack of stability in the economy and society are a recurring theme, with companies complaining about legal uncertainty, uncertainty in Hungary's economic policies regarding taxation, exchange and interest rates. Worries about future political stability and GDP growth are also common. Only two companies complain about industry specific external problems: Cartels (H10) and lack of payment discipline (H8).

competing on price, without experiencing too many problems in their product quality[72].

Punctuality is considered less important by companies with high export growth to Eastern Europe [0.68, 5%], while companies increasing their exports world-wide rank punctuality highly [-0.57, 5%]. Assuming that punctuality is of the same importance to customers all over the world this indicates that Hungarian companies can still "get away with" being less punctual in Eastern Europe. Nevertheless companies increasing their sales in Eastern Europe have been generally aiming to provide good product quality [0.45, 10%].

The interviews showed that all the Hungarian companies (H9, H10, H5, H8) which assign a relatively low importance to price competition tend to have a degree of monopoly power, either by dominating the domestic market (H5, H8), being a member in a cartel (H10) or by operating in a small niche with few direct competitors (H9). The effect of a company facing small as well as large competitors is that it ranks price competition more highly than average [-0.83, 1%], indicating that in these industries the small entrants serve to drive prices down. Additional competition from small companies also enhances a company's incentives for punctual delivery [0.83, 1%].

[72] Two types of companies tended to assign a high importance to competition in terms of quality: those who excel in this dimension and those which still face problems in this area.

I also enquired about the importance of various regional characteristics for the economic success of the company interviewed.[73] The means of the relevant variables (Tables 4a & b) indicate that for East German interview partners the availability of a highly qualified workforce is a very important factor for all companies, while the availability of a cheap workforce is attributed a medium importance by three companies only. Similarly in the Hungarian data the difference between the mean of the variable capturing the importance of a highly trained workforce and the mean score for a cheap workforce is significant at the 1% level[74], indicating that there too the availability of a cheap workforce is clearly a secondary factor when compared with the importance of well trained employees. This result provides a counterargument to the popular claim that cheap labour is what is making Eastern Europe attractive to investors.[75] What makes Eastern Europe and especially Hungary attractive to investors is not cheap labour, but rather the combination of a cheaper and very highly trained workforce. It is of essential importance for the future economic success and recovery of the region to maintain its currently high levels of human capital, that is the good provision of technical and non-technical training and of general schooling.

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[73] The interviewees were asked to ascribe strengths to their preferences and to order factors according to their importance. The first two questions relate to characteristics of the workforce, the next three to proximity of relevant input and output markets and the last three deal with public good provision, for example the quality of the local infrastructure.

[74] I obtain a test statistic of 3.57, while the critical value for 1% significance is 2.52 for a t-distribution with 20 degrees of freedom. IN comparison to the East German companies the Hungarian companies ascribe a significantly (at the 5% level) higher overall importance to the fact that their workforce is relatively cheap. This is not a reflection of the fact that the East German companies would not like to have a relatively cheap workforce, rather they have few labour cost advantages over West German and EU companies because of the fast rise in East German wages to levels which are very close to West German ones.

Confirming market access considerations the East German companies also emphasise the importance of having a well developed infrastructure in the region.[76] Similarly in the Hungarian data the considerations which closely follow a well-trained workforce all relate to the proximity of the companies' markets and the state of the infrastructure the companies have to rely upon in order to obtain access to different geographical markets. The Hungarian companies place, however, a much higher valuation on being close to their most important customers and input providers (both significant at the 1% level). East German companies would probably not be indifferent about having more customers and suppliers in close proximity, enabling them to have, for example, transportation cost savings. Whether East German manufacturing companies would like to have customers and suppliers in close proximity is not, however, really the relevant question. More to the point, they cannot have them because they usually do not exist. On the other hand the Hungarian companies predominantly have domestic customers and suppliers who, all the better, tend to be in close proximity.[77] Since services are usually not tradable, it is no contradiction to find that the East German

[75] In the Hungarian data companies with FDI especially value the availability of a highly trained workforce [0.62, 5%] rather than a cheap one. In addition companies which ascribe a high importance to having a cheap workforce also tend to appreciate high standards of training [0.54, 5%].

[76] East German companies which value having a good infrastructure tend to sell a relatively small proportion of their output in East Germany [-0.64, 5%] and a high proportion in West Germany [0.61, 5%] and the EU [0.53, 10%] in 1996. Due to their high export levels westwards they also assign a high importance to both price [-0.65, 5%] and quality [-0.62, 5%] competition.

[77] East German companies which value proximity to their customers as well as input providers [0.65, 10%] tend to be construction companies [-0.82, 1%] who are strongly localised in their operations [0.83, 1%]. Competition in product quality and punctuality is relatively unimportant to these companies [0.72, 5% and 0.78, 1% for example in the cost of companies valuing proximity to their suppliers] probably because once a contract has been won predominantly based on price considerations, the customer experiences significant transaction specific sunk costs for any given building project. There is no evidence for any such trends in the Hungarian data, were proximity to their input and output markets is more uniformly considered to be important.

companies value proximity to their service providers just as highly as the Hungarian ones.[78]

Although the Hungarian and German companies do not significantly differ in their assessment of the absolute importance of the three public goods the Hungarian companies' give a very low relative ranking two public goods, namely the proximity to research institutions and a competent local government.[79] At times (especially in the case of H1) proximity of research institutions is judged to be unimportant because the company has its own internal R&D department, while in the East German data there is a general lack of R&D. The Hungarian data provides some evidence that companies purchasing R&D from surrounding institutions have an above average export performance to the EU [0.52, 10%] and world-wide [0.51, 10%], especially in terms of export growth between 1990 and 1996 [0.71, 1% and 0.45, 10% respectively]. Even though these companies are exporting products with a high R&D content, price competition remains their dominant consideration [-0.64, 5%].

[78] Since proximity to service providers greatly enhances a companies' flexibility it should come as no surprise that in both data sets companies which value proximity to their service providers are export orientated, experiencing especially rapid export growth westwards between 1990 and 1996 [in the East German data: 0.53, 10% for export growth to the EU, 0.48, 10% for export growth world-wide; in the Hungarian data: 0.61, 5% for total export growth, 0.53, 5% for export growth to the EU. These Hungarian companies also ascribe a very high importance to price competition: -0.81, 1%].

[79] Hungarian companies which assign a high importance to one of these factors tend to also do so for the other [0.81, 1%], suggestion that these are companies who are generally more tightly integrated into the institutional structures surrounding them. Similarly East German companies ascribing a high importance to their local government are more localised than average in their operations and have low exports to the EU [-0.54, 10%]. East German companies tend to praise their local government while in Hungary the tenor tends to be, especially when foreign managers are being interviewed: "If a competent local government was of any importance to us, we would not be here." (Interview with the MD of Douwe-Egberts.)

Tables 4a & b also make some interesting suggesting concerning a companies' relative probability of being profitable. For example with respect to different regional characteristics I find that companies which assign a high importance to the importance of a competent local government are more likely to be profitable both in 1995 [0.65, 10%] and 1997 [0.68, 5%]. The interviews showed that companies which assign a high importance to a competent local government do so because they feel that their local government is of great value to the company in dealing with the social dimensions of its restructuring process or, in the construction sector, in securing contracts for the company.

In 1995 there was a strong negative association between East German companies which ascribe a high importance to a well-developed regional infrastructure [-0.91, 1%] and those which are profitable. Since East Germany suffered from some backwardness (relative to West Germany) in, for example, its telecommunications and road networks it should not come as a surprise that companies which have an above average dependency on this relatively backwards infrastructure suffered a competitive disadvantage. By 1997 this association is insignificant which suggests that the large investments into infrastructure projects which took place in East Germany since 1990 seem to be succeeding in alleviating the infrastructure related problems especially manufacturing companies tended to face.[80]

[80] The Hungarian data merely indicates that in 1996 companies which value proximity to their customers are more likely to be profitable than average [0.56, 5%], while those valuing proximity to their input suppliers are less likely to be profitable [-0.48, 10%].

## 6. Conclusions

My qualitative and quantitative data suggests that both East German and Hungarian suppliers experienced similar initial problems, especially with the quality of their products. They also suffered from a generally weak financial position and from transition specific problems such as a lack of punctuality and reliability. The response of East German and Hungarian customers to the problems faced by their domestic suppliers has been very different. Faced with very low trade costs East German customers generally abandoned their domestic suppliers because they had easy access to pre-existing supply networks in the West. Hungarian suppliers on the other hand benefited from the protection offered to them by Hungary's own currency and generally higher transportation costs to Hungary. These factors, however, merely gave them some breathing space. The threat of competition from the EU remains very real, especially in sectors in which quality is very important. There is evidence that Hungarian suppliers are responding by rapidly increasing their product quality and by being highly accommodating to their customers.

The diverging geographical shifts which have taken place in terms of input markets are mirrored in the companies' output markets. Although Hungarian companies had higher exports world-wide and to the EU in 1990, I find that by 1996 the East German companies have experienced far larger increases in their exports, especially to West Germany, and decreases in their domestic sales. The overall shifts are in accordance with the literature surveyed: Trade liberalisation has resulted in increased exports to the EU from companies in both countries. The increase in exports has been especially

large in the case where trade barriers have been entirely abolished, namely from East German companies to West Germany. The interviews indicated that market size consideration were instrumental in re-focusing East German companies to the West German market: not only did the West German market present many new opportunities, but many East German customers vanished. Domestic companies interviewees supplied with inputs ceased, greatly changed or reduced their operations. In some sectors, such as steel, tyres, gears and turbines interview partners indicated that the East German market of industrial customers had all but ceased to exist, suggesting a process of disaglomeration. In addition East German final consumers showed a strong lack of brand loyalty, while Hungarian consumers were more prone to be sceptical about Western brands. Consistently with market access and transportation cost considerations interviews with Hungarian companies provided some evidence for an increasingly regional focus on Central Europe defined as a 1000 km radius both east- and westwards.

The persistence of historical trends in both data sets suggests that a pre-existing exporting capability is a pre-condition for being able to provide a flexible supply response to the opportunities presented by trade liberalisation. Since few East German companies had a pre-existing exporting capability and even fewer any direct experiences with Western customers the hypothesis presents itself that the extremely rapid trade liberalisation which took place not only enabled the survivors to re-orientated themselves westwards, but also forced them to do so by 'eliminating an

inordinate share of domestic production' [van Brabant (1994, p.167)] and hence demand.

The devastation suffered by East German industry is also reflected in the companies' market shares. From similar starting points, between 1990 and 1996 the average Hungarian manufacturing company has only experienced a 3 percentage point fall in its market share, while the fall experienced by East German companies tended to be closer to 74 percentage points (significant at the 1% level), resulting in the typical East German company having a significantly (at the 1% level) lower overall market share in 1996. The combination of the vanishing industrial and frequently also consumer demand for traditional East German products and of the unfettered market access enjoyed by Western companies has resulted in a situation where locally East German companies are not only frequently facing a smaller pie but are also obtaining a much smaller slice of what is left. This is a recipe for eliminating companies rather than for restructuring them.

The protection afforded to the Hungarian companies in the form of higher transportation costs to Hungary and their labour cost advantage are crucial in giving them a chance in competing with western multinationals. Reductions in market share which occurred nevertheless have generally been the result of entry by multinationals, rather than the consequence of indigenously grown new Hungarian competitors.
I find no evidence that in manufacturing the rapid expansion of the small and medium-sized firm sector has occurred which was hoped to "ensure output growth,

generate new employment, provide a tax base and generally augment the flexibility and dynamism of these economies" [Svejnar (1991, p. 133)]. This observation makes the successful restructuring of the existing manufacturing base all the more imperative.

It is clear from the interviews that their continuing cost advantages are not, however, making the Hungarian companies complacent. They respond to the threat of competition by improving the quality of their products while maintaining relatively low prices. Since Hungary is a small economy, it is also important to bear in mind that being large in terms of domestic market share by no means entails being inappropriately big from the point of view of international scale economies and competitiveness. I find that it is exactly the companies which have a large domestic market share which are also strong exporters. A policy of domestic demonopolisation might well have adversely affected this exporting capability without providing incentives for restructuring which are not obtainable from continuing and gradual trade liberalisation with the aim of eventual EU membership.

With respect to the role of regional characteristics and of different dimensions of competition the case studies confirm the important role played by net labour cost advantages in maintaining the attractiveness of Central Europe as a manufacturing location. In this context the rapid wage assimilation between West and East Germany posed a particular problem to East German companies. Since it is net labour costs which count in this context, it is not enough for a workforce to be cheap, but it also

has to be well-trained and sufficiently productive to constitute a competitive advantage. It is this combination which allows both East German and Hungarian companies to strive for niches in which they provide products of Western quality at lower prices.

There is some evidence, however, that the (indigenous) R&D content of the East German products is lower, making East German companies mainly successful in exporting product of a relatively homogenous design to western markets. Hungarian companies not only have a greater wage cost advantages, but have also maintained a greater R&D capacity. Although in their case as well price remains the primary competitive focus, there is some evidence that this greater R&D content allows for high export growth to EU and world-wide markets.

The very high importance ascribed in both data sets to a well-developed infrastructure underlines the role played by market access and transportation costs in influencing the companies' ability to compete internationally. In this context it is notable, however, that Hungarian companies have a significantly (at the 1% level) higher valuation of being in proximity to their most important customers and input providers. This suggests that local agglomeration forces and the logic of cumulative causation are working in favour of manufacturing in Hungary.

The question arises whether the extensive destruction of the East German manufacturing base has resulted in dis-agglomeration, that is a situation where in

most industrial sectors (with the clear exception of construction) the critical mass of domestic industry has been lost. In conjunction with the rapid wage assimilation between East and West Germany this results in a situation where the general lack of centrifugal and centripetal forces favouring East Germany as a production site makes East German re-industrialisation an unlikely prospect even in the longer term. Hungary on the other hand provides an example of how gradual but fully credible trade liberalisation with the aim of future integration with the EU provide restructuring incentives without destroying a country's manufacturing base.

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# Data Appendix

## Table 1: Data on changes in the geographical structure of supply relationships[i]

| | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | mean | significant differences between East German and Hungarian data?[ii] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H90%Hung | 100 | 0 | 20 | 40 | 80 | 75 | 50 | 30 | 80 | 100 | 25 | 54.5 | complete data set: YES<br>manufacturing only: NO |
| H90%EEur | 0 | 0 | 0 | 15 | 0 | 20 | 0 | 0 | 10 | 0 | 75 | 10.9 | complete data set: NO<br>manufacturing only: NO |
| H90%EU | 0 | 15 | 60 | 40 | 20 | 5 | 40 | 70 | 10 | 0 | 0 | 23.6 | complete data set: YES<br>manufacturing only: NO |
| H90%WW | 0 | 85 | 20 | 5 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 10.9 | complete data set: NO<br>manufacturing only NO |
| H96%Hung | 98 | 30 | 35 | 30 | 80 | 70 | 60 | 10 | 20 | 100 | 20 | 50.2 | complete data set: NO<br>manufacturing only: YES |
| H96%EEur | 2 | 5 | 0 | 10 | 0 | 10 | 0 | 0 | 60 | 0 | 78 | 15 | complete data set: NO<br>manufacturing only: NO |
| H96%EU | 0 | 10 | 45 | 30 | 20 | 20 | 30 | 90 | 20 | 0 | 0 | 24.1 | complete data set: YES<br>manufacturing only: YES |
| H96%WW | 0 | 55 | 20 | 30 | 0 | 0 | 10 | 0 | 0 | 0 | 2 | 10.6 | complete data set: NO<br>manufacturing only: NO |
| HΔHung | -2 | 30 | 15 | -10 | 0 | -5 | 10 | -20 | -60 | 0 | -5 | -4.2 | complete data set: YES<br>manufacturing only:YES |
| HΔEEur | 2 | 5 | 0 | -5 | 0 | -10 | 0 | 0 | 50 | 0 | 3 | 4.1 | complete data set: NO<br>manufacturing only: NO |
| HΔEU | 0 | -5 | -15 | -15 | 0 | 15 | -10 | 20 | 10 | 0 | 0 | 0 | complete data set: YES<br>manufacturing only: YES |
| HΔWW | 0 | -30 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | -0.3 | complete data set: NO<br>manufacturing only: NO |
| H%oldsup | 100 | 95 | 25 | 25 | 95 | 80 | 76 | 70 | 20 | 60 | 80 | 66 | complete data set: NO<br>manufacturing only: NO |
| | | | | | | | | | | | | | |
| | *D1, c* | *D2, c* | D3 | D4 | D5 | *D6, c* | *D7, c* | D8 | D9 | | | mean, complete data | mean, manufacturing data only (excluding companies marked with c) |
| D90%EGer | *100* | *100* | 95 | 70 | 0 | *80* | *100* | 96 | 70 | | | 79 | 66 |
| D90%WGer | *0* | *0* | 0 | 20 | 50 | *0* | *0* | 4 | 5 | | | 8.7 | 16 |
| D90%EEur | *0* | *0* | 5 | 0 | 50 | *20* | *0* | 0 | 25 | | | 11.1 | 16 |
| D90%EU | *0* | *0* | 0 | 10 | 0 | *0* | *0* | 0 | 0 | | | 1.1 | 2 |
| D96%EGer | *50* | *50* | 0 | 30 | 0 | *80* | *100* | 30 | 5 | | | 38.3 | 13 |
| D96%WGer | *50* | *50* | 15 | 28 | 50 | *20* | *0* | 40 | 60 | | | 34.7 | 39 |
| D96%EEur | *0* | *0* | 85 | 0 | 5 | *0* | *0* | 0 | 0 | | | 10, (0.5 excl. D3) | 18 *(1 excl. D3)* |
| D96%EU | *0* | *0* | 0 | 40 | 40 | *0* | *0* | 20 | 20 | | | 13.3 | 24 |
| D96%WW | *0* | *0* | 0 | 2 | 5 | *0* | *0* | 10 | 15 | | | 3.5 | 6 |
| DΔEGer | *-50* | *-50* | -95 | -40 | 0 | *0* | *0* | -66 | -65 | | | -41 | -52 |
| DΔWGer | *50* | *50* | 15 | 8 | 0 | *20* | *0* | 36 | 55 | | | 26 | 23 |
| DΔEEur | *0* | *0* | 80 | 0 | -45 | *-20* | *0* | 0 | -25 | | | -1.1, (-10 excl. D3) | 2 (-14 excl. D3) |
| DΔEU | *0* | *0* | 0 | 30 | 40 | *0* | *0* | 20 | 20 | | | 12.2 | 22 |
| DΔWW | *0* | *0* | 0 | 2 | 5 | *0* | *0* | 10 | 15 | | | 3.5 | 6 |
| D%oldsup | 8 | 5 | 0 | 70 | 35 | 80 | 17 | 35 | 2 | | | 23 | 28 |

[i] **Definition of the variables used:**

| | |
|---|---|
| **D90%EGer/ H90%Hung** | percentage of total inputs (physical and support services) procured in East Germany/Hungary in 1990 |
| **D90%WGer** | percentage of total inputs (physical and support services) procured in West Germany in 1990 |
| **D (H) 90%EEur** | percentage of total inputs (physical and support services) procured in Eastern Europe in 1990 |
| **D90%EU** | percentage of total inputs (physical and support services) procured in the European Union in 1990, excluding West Germany |
| **H90%EU** | percentage of total inputs (physical and support services) procured in the European Union in 1990, including West Germany |
| **H90%WW** | percentage of total inputs (physical and support services) procured world-wide in 1990, zero for all East German companies in 1990 |
| **D96%EGer/ H96%Hung** | percentage of total inputs (physical and support services) procured in East Germany/ Hungary in 1996 |
| **D96%WGer** | percentage of total inputs (physical and support services) procured in West Germany in 1996 |
| **D (H) 96%EEur** | percentage of total inputs (physical and support services) procured in Eastern Europe in 1996 |
| **D96%EU** | percentage of total inputs (physical and support services) procured in the European Union in 1996, excluding West Germany |
| **H96%EU** | percentage of total inputs (physical and support services) procured in the European Union in 1996, including West Germany |
| **D96%WW** | percentage of total inputs (physical and support services) procured world-wide Union in 1996 |
| **DΔEGer** | D96%EGer minus D90%EGer: the in - (or de)crease in the percentage of total inputs which are procured in East Germany |
| **HΔHung** | H96%Hung minus H90%Hung: the in - (or de)crease in the percentage of total inputs which are procured in Hungary |
| **DΔWGer** | D96%WGer minus D90%WGer: the in - (or de)crease in the percentage of total inputs which are procured in West Germany |
| **D (H) ΔEEur** | D (H) 96%EEur minus D (H) 90%EEur: the in - (or de)crease in the percentage of total inputs which are procured in Eastern Europe |
| **DΔEU** | D96%EU minus D90%EU: the in - (or de)crease in the percentage of total inputs which are procured in the European Union, excluding West Germany |
| **HΔEU** | H96%EU minus H90%EU: the in - (or de)crease in the percentage of total inputs which are procured in the European Union, including West Germany |
| **D (H) ΔWW** | D (H) 96%WW minus D (H) 90%WW: the in - (or de)crease in the percentage of total inputs which are procured world-wide, since D90%WW is 0 for all companies DΔWW equals D96%WW |
| **D(H)%oldsup** | percentage of current suppliers which pre-date 1990 |

[ii] The critical values relevant to the complete pooled data set are: $t_{18\ (10\%)} = 1.33$, $t_{18\ (5\%)} = 1.73$, $t_{18\ (1\%)} = 2.55$.
The critical values relevant to the pooled data set containing the Hungarian and German manufacturing companies only are: $t_{13\ (10\%)} = 1.35$, $t_{13\ (5\%)} = 1.77$, $t_{13\ (1\%)} = 2.65$.

| Variables | t-statistic obtained for complete data set, reject or accept null of homogeneity between country data sets? | t-statistic obtained for manufacturing data set, reject or accept null? |
|---|---|---|
| **90%Hung/ 90%EGer** | -1.63, reject at 10% level | -0.85 , accept |
| **90%EEur** | -0.02, accept | -0.31, accept |
| **90%EU / (90%EU + 90%WGer)** | 1.37, reject at 10% | 0.62, accept |
| **90%WW** | 1.28 accept | 0.99, accept |
| **96%Hung** | 0.78, accept | 2.25, reject at 5% |
| **96%EEur** | 0.40, accept | -0.08, accept |
| **96%EU/ (96%EU + 96%WGer)** | -1.89, reject at 5% | -2.43, reject at 5% |
| **96%WW** | 1.14, accept | 0.61, accept |
| **ΔHung, Δ EGer** | 2.85, reject at 1% | 3.16, reject at 1% |
| **ΔEEur** | 0.44, accept | 0.15, accept |
| **ΔEU/ ΔEU + ΔWGer** | -4.82, reject at 1% | -5.13, reject at 1% |
| **ΔWW** | -0.85, accept | -1.07, accept |
| **%oldsup** | 2.84, reject at 1% | 2.28, reject at 1% |

## Table 2a: Qualitative data on suppliers

| | **What were the main reasons for stopping using "old" suppliers?** | **Do you think that there are any significant differences between suppliers located in East Germany and those in West Germany?** | ***How are your supply relationships going to develop in the next five years?*** |
|---|---|---|---|
| **D1** | D1 is aiming to obtain the ISO certificate for **quality** and for that reason has to insist on supplies which meet these requirements. | No significant ones, companies in East Germany accept the new rules of the game | No significant changes are envisaged |
| **D2** | The **quality** of some of the products offered by old suppliers was not sufficient. At the same time some old suppliers were offering a **too narrow product range** and were located at **too great a geographical distance** | NONE | NONE |
| **D3** | They **stopped existing.** Furthermore the parent offers good **quality** at advantageous prices. | Not really, but there are not many left. | Essentially remain unchanged, would like the parent to improve product range, they do not think that the parent might use D3's dependence since D3 demands only a minimal fraction of the parent's overall output |
| **D4** | **Quality problems.** | NONE | In principle no changes, but there might be new entrants with better prices, which might not be matched by old suppliers |
| **D5** | Insufficient **quality, fraudulent labelling** by trading houses (e.g. claims that a product made by a no-name supplier was produced in Germany) | Today the company still uses its old suppliers of packaging materials. D5 claims that there is a sense of **Solidarity** between itself and suppliers in East Germany. However there has never been much inputs production for pharmaceuticals in the East Germany and chemicals production has been reduced drastically. | Even stronger concentration on a few input sources and stronger quality control requirements on suppliers. The reason is that each supply relationship requires a large investment, D5 needs to know suppliers well and needs personal contacts to communicate changes in production requirements. |
| **D6** | Insufficient **quality** and lack of **punctuality, bankruptcies**. | Initially large **price differentials** East Germany- West Germany. West German suppliers are seen as less co-operative than East German ones who have to acquire a good reputation | There are constant bankruptcies, D6 has to constantly find new suppliers. |
| **D7** | Many East German companies were too small to be able to offer competitive prices. | NONE - you find unacceptable behaviour with both. | The company is aiming to establish close relationships with a core set of suppliers while keeping a close look on market developments. |
| **D8** | 1) stopped existing<br>2) lacking technological and quality standards<br>3) uncompetitive prices (a problem in all of Germany) | Suppliers in Eastern Germany are more flexible and willing to cater for special requests. | The company is wanting to improve its risk management and thus be able to enter more price competitive (but also more risky) input markets. |
| **D9** | 1) Companies ceased to exist<br>2) Company D9 had no use for their product because it took over an entire product line together with the suppliers from the investor | Companies in Eastern Germany have more modern machinery and production methods than those in West Germany | The company is intending to consolidate its suppliers to a smaller core. |

## Table 2b: Qualitative data on suppliers

| | What were the main reasons for stopping using "old" suppliers? | Do you think that there are any significant differences between suppliers located in Hungary and foreign ones? | How are your supply relationships going to develop in the next five years? |
|---|---|---|---|
| **H1** | With respect to packaging materials many old suppliers were unable to meet H1's increased **quality** requirements. Foreign owned companies based in Hungary filled the gap very quickly, however. | NONE: Most Hungarian packaging companies are foreign owned and are entirely up to Western standards. H8 supplies H1 with printed labels. | According to H1's MD the Hungarian packaging sector is competitive. This gives him a large enough choice of potential suppliers should the existing ones prove to be unsatisfactory. |
| **H2** | They were unable to offer competitive **prices** and a sufficient **quality.** There were also severe problems with **punctuality** in some instances. | YES: "In the area of packaging materials, for example, foreign companies are better able to meet our increased **quality** requirements because they have a better technology. When we give tenders, we find that Hungarian companies have a lower amount of **experience and economic knowledge**. An exception to this previous statement are Hungarian companies with FDI, which are even more confused than those without an investor because their investors are constantly introducing new systems and procedures. In terms of the punctuality of deliveries foreign companies are just as unreliable as Hungarian ones." | H2 is aiming at developing close partnerships with a small group of **core suppliers.** In these partnerships explicit account is taken of **"non-price benefits obtained through longer term contracts.** Partners tend to be more reliable than other suppliers. Until now we tended to test the market with every purchase. This is very work intensive. We will save these transaction costs with long-term suppliers, which leads to large savings even though we might not be buying at the cheapest price in every given instance. We re-evaluate the partners on a yearly basis and offer new tenders if we are not satisfied." |
| **H3** | Many went **bankrupt**. In other cases no agreement concerning **payment methods** could be reached. **Quality** and lack of **punctuality** constituted further problems. | YES: "Hungarian suppliers are close to us and work at least as hard. If the **Hungarian** supplier has the same technology we choose him anytime. They are **reliable, cheaper and open to suggestions."** | H3 wants to **widen the circle of its suppliers** and wants to search out **direct suppliers** in order to cut intermediaries (wholesalers) out. |
| **H4** | **Bankruptcy** and **"ethical misendevours"** | YES: Some Hungarian suppliers are highly developed. The majority is, however, in dire need of investment which makes them ineffective and inflexible. Some suppliers have not yet been privatised, others have been unsuccessfully privatised and yet others were acquired for asset stripping purposes. Investors bought them, took their good products away and ran them to the ground. | H4 is aiming to establish more **direct supply relationships on an increasingly global scale** and to move to **longer-term (that is one year) contracts.** It is establishing a tender process which is very similar to that described in H2. |
| **H5** | Insufficient **quality and punctuality** | Hungarian suppliers used to have more problems with **quality and punctuality**. Nowadays **these differences are disappearing fast**. | H5 aims to maintain its current supply arrangements. |
| **H6** | H6's output declined dramatically, so that a major reason for discontinuing pre-existing supply relationships was **H6's economic problems**. Russian suppliers especially had problems with **punctuality and quality**. Other **suppliers decided that they no longer wanted to supply H6** because they perceived better opportunities elsewhere. These latter companies tended to, however, approach H6 again subsequently. | "It is easier to stay in contact with Hungarian suppliers and to co-ordinate one's actions. Most foreign suppliers are more diligent in drawing up precise contracts and they require more payment guarantees. However, these trends are highly company specific, we had Western suppliers as well who lacked punctuality and flexibility." | H6 is aiming to build more **long-term relationships and to engage in close co-operation** and daily contact with a core set of suppliers. |

## Table 2b (continued):

| | What were the main reasons for stopping using "old" suppliers? | Do you think that there are any significant differences between suppliers located in Hungary and foreign ones? | How are your supply relationships going to develop in the next five years? |
|---|---|---|---|
| **H7** | Some suppliers **could not adjust to the new requirements** made by H7. Very seldom there were **quality** problems, but the quality of inputs was very high already before 1990. Some smaller suppliers suffered from **financial instability**. | Hungarian suppliers used to be **less financially stable** than Western ones, but their financial position has been strengthening. Their productivity has been lower but is rapidly growing. The **quality** of their products depends on their previous customers. Suppliers which had very export orientated customers before 1990 tend to be better. The **ancillary services** they provide tend to be very backwards. | H7 is intending to **increase its reliance on Hungarian suppliers**. "WE are training local suppliers and bring them up to scratch rather than to depend on European suppliers. Some suppliers respond by fleeing in panic whereas others endorse our quality control methods etc. with enthusiasm." |
| **H8** | **Unreliability.** | The main differences relate to the **quality** of the products offered, which can be lower in the case of Hungarian suppliers. | If there exists a Hungarian supplier who offer a quality price combination which is comparable to that offered by foreign suppliers, then H8 will always choose the Hungarian supplier. H8 is hoping for **more Hungarian suppliers** to develop who have a pro-active (customer focused) attitude and offer a high quality product. |
| **H9** | H9 **changed its product range** after a fire destroyed some of its product facilities. This was the main reason for changing suppliers. | Hungarian suppliers are approaching, although not yet entirely achieving, Western standards. | Remain **unchanged.** |
| **H10** | Some old suppliers were **unable to offer competitive prices** and to adjust to the new **quality** requirements and **needs of their customers**. | N.A | H10's aim is to **continue avoiding becoming excessively dependent on any given supplier.** |
| **H11** | 1. **bankruptcy**<br>2. **lack of reliability** with respect to the products' quality and punctuality in delivery<br>3. **opportunism:** attempts to change prices after at tender has been won inevitably leads to a discontinuation of the business relationship. | NONE: All nationalities have black cats among them. | H11 is aiming to **reduce its dependency on Russia** and is open to developing relationships with new suppliers. Its long-term aim is to develop **close relationships with a core set of high quality suppliers**. In the interest of finding good new suppliers H11 is constantly keeping an eye on opportunities in this area and takes references from possible new business partners. H11 then enters into a **"trial marriage"** in which it starts with a low level of commitment and a low exposure to the new supplier. |

## Table 3: List of variables relating to product markets

| | |
|---|---|
| **D(H)hqual** | 1 if the availability of a highly qualified workforce is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)cheap** | 1 if the availability of a cheap workforce is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)custprox** | 1 if proximity to the company's most important customers is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)inprox** | 1 if proximity to the company's most important input suppliers is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)servprox** | 1 if proximity to the company's most important service suppliers is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)randdprox** | 1 if proximity to local research institutions is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)localgov** | 1 if a competent local government is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D(H)infrastr** | 1 if a well developed infrastructure is of high importance to the company's competitive success, 0.5 if this factor is of medium importance and 0 otherwise |
| **D%out 90 EGer/ H%out90Hung** | percentage of the company's total output which was sold in East Germany/ Hungary in 1990 |
| **D(H)%out 90EEur** | percentage of the company's total output which was sold in Eastern Europe in 1990 |
| **D%out 90WGer** | percentage of the company's total output which was sold in West Germany in 1990 |
| **D (H) %out 90EU** | percentage of the company's total output which was sold in the European Union (excluding West Germany for East German data, including West Germany for Hungarian data) in 1990 |
| **D(H)%out 90 WW** | percentage of the company's total output which was sold world-wide (that is outside Europe) in 1990 |
| **D(H)Total Exp 90** | sum of total sales realised outside East Germany/ Hungary in 1990 |
| **D%out 96 EGer/ H%out96Hung** | percentage of the company's total output which was sold in East Germany/ Hungary in 1996 |
| **D(H) %out96 EEur** | percentage of the company's total output which was sold in Eastern Europe in 1996 |
| **D%out 96WGer** | percentage of the company's total output which was sold in West Germany in 1996 |
| **D(H) %out 96EU** | percentage of the company's total output which was sold in the European Union (excluding West Germany for East German data, including West Germany for Hungarian data) in 1996 |
| **D(H) %out 96 WW** | percentage of the company's total output which was sold world-wide (that is outside Europe) in 1996 |
| **D(H) Total Exp 96** | sum of total sales realised outside East Germany/ Hungary in 1996 |
| **DΔ Total Exp** | DTotal Export 96 minus DTotal Export 90: the in - (or de)crease in the company's export orientation since 1990 |
| **DΔ out Eger/ HΔ out Hung** | D%out 96EGer minus D%out 90EGer: the in - (or de)crease in the percentage of total output which is sold in East Germany/ Hungary |
| **DΔ out WGer** | D%out 96WGer minus D%out 90WGer: the in - (or de)crease in the percentage of total output which is sold in West Germany |
| **D(H) Δ out EEur** | D%out 96EEur minus D%out 90EEur: the in - (or de)crease in the percentage of total output which is sold in Eastern Europe |
| **DΔ out EU** | D%out 96EU minus D%out 90Eur U: the in - (or de)crease in the percentage of total output which is sold in the European Union |
| **D(H) Δ out WW** | D%out 96WorldW minus D%out 90WorldW: the in - (or de)crease in the percentage of total output which is sold world-wide |
| **D(H) MS 90** | market share of the company in 1990, 100%= the East German (Hungarian) market, except in the cases of D1, D2 and D7 where the relevant market is greater Berlin or, in the case of D2, only one quarter of Berlin |
| **D(H) MS 96** | market share of the company in 1996, the same areas are taken as 100% as for Market Share 90 |
| **D(H) ΔMS** | D(H)MS 96 minus D(H)MS 90 |
| **D (H) numcomp** | 1 if the company faces a large number of competitors, 0 otherwise. In the East German data this variable is 0 for Company D9 only. |
| **D (H) small comp** | 1 if the company mainly faces small competitors, 0 otherwise. |
| **D(H) big comp** | 1 if the company mainly faces large competitors, 0 otherwise. This variable is 1 for all the East German companies. If a company faces both large and small competitors, then both big comp and small comp equal 1. |
| **D(H) C Eger (Hung)** | 1 if important competitors are located in East Germany / Hungary in 1996, 0 otherwise. |
| **DComp 96 WGer** | 1 if important competitors are located in West Germany in 1996, 0 otherwise. |
| **D(H) C EEur** | 1 if important competitors are located in Eastern Europe in 1996, 0 otherwise. |

## Table 3 (continued):

| | |
|---|---|
| **D(H) C EU** | 1 if important competitors are located in the European Union in 1996, 0 otherwise. |
| **D(H) C 96 WW** | 1 if important competitors are located in countries outside Europe in 1996, 0 otherwise. |
| **D(H) DiC price** | Captures the extent to which price is an important dimension of competition in the company's main product markets. Interview partners ranked the importance of this factor on a sale of 1 (very important) to 6 (unimportant). Consequently the lower the numeric value for this entry, the more important a determinant of the company's competitive success price is. |
| **D(H) DiC quality** | Captures the extent to which quality is an important dimension of competition in the company's main product markets. Interview partners ranked the importance of this factor on a sale of 1 (very important) to 6 (unimportant). |
| **D(H) DiC punct** | Captures the extent to which punctual delivery is an important dimension of competition in the company's main product markets. Interview partners ranked the importance of this factor on a sale of 1 (very important) to 6 (unimportant). |
| **D(H) DiC design** | Captures the extent to which design (including packaging and technical design) is an important dimension of competition in the company's main product markets. Interview partners ranked the importance of this factor on a sale of 1 (very important) to 6 (unimportant). |
| **D pr 95** | 1 if the company was profitable in 1995, 0 otherwise. |
| **Hpr 96** | 1 if the company was profitable in 1996, 0 otherwise. |
| **D pr97** | 1 if the company was profitable in 1997, 0 otherwise. |
| **D manufacturing/ H food** | 1 if the company belongs to the manufacturing/ food sector, 0 if it belongs to the construction sector. |
| **D(H) IMPPR** | 1 if the investor was the main force determining the restructuring of the product range, 0 otherwise. |
| **D(H) FDI** | 1 if the company has FDI, 0 otherwise. |

## Table 4a: Summary of the data on the East German companies' product markets

| | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | *mean* |
|---|---|---|---|---|---|---|---|---|---|---|
| **Dhqual** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | *1* |
| **Dcheap** | 0[i] | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | *0.33* |
| **Dcustprox** | 1 | 1 | 0.5 | 0 | 0 | 0.5[ii] | 1 | 0.5 | 0 | *0.5* |
| **Dinprox** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | *0.27* |
| **Dservprox** | 1 | 0 | 1 | 0 | 0.5[iii] | 0 | 0.5 | 1 | 0.5 | *0.5* |
| **Dranddprox** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | *0.1* |
| **Dlocalgov** | 1[iv] | 0.5 | 0 | 1 | 1[v] | 0 | 1[vi] | 0.5 | 0 | *0.55* |
| **Dinfrastr** | 0 | 0.5 | 1 | 1 | 0.5 | 1 | 0.5 | 1 | 1 | *0.72* |
| **D%out 90EGer** | 100 | 100 | 75 | 80 | 60 | 70 | 100 | 85 | 100 | *85.55* |
| **D%out 90EEur** | 0 | 0 | 15 | 0 | 40 | 5 | 0 | 15 | 0 | *8.33* |
| **D%out 90WGer** | 0 | 0 | 10 | 6.6 | 0 | 0 | 0 | 0 | 0 | *1.84* |
| **D%out 90EU** | 0 | 0 | 0 | 6.6 | 0 | 0 | 0 | 0 | 0 | *0.73* |
| **D%out 90 WW** | 0 | 0 | 0 | 6.6 | 0 | 25 | 0 | 0 | 0 | *3.51* |
| **DTotal Exp90** | 0 | 0 | 25 | 20 | 40 | 30 | 0 | 15 | 0 | *14.44* |
| **D%out 96EGer** | 100 | 100 | 20 | 25 | 50 | 90 | 100 | 65 | 5 | *61.66* |
| **D%out96 EEur** | 0 | 0 | 5 | 0 | 35 | 3 | 0 | 5 | 0 | *5.33* |
| **D%out 96WGer** | 0 | 0 | 60 | 75 | 10 | 7 | 0 | 5 | 65 | *24.66* |
| **D%out 96EU** | 0 | 0 | 15 | 0 | 5[vii] | 0 | 0 | 25 | 30 | *8.33* |
| **D%out 96 WW** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | *1.11* |
| **DTotal Exp 96** | 0 | 0 | 80 | 75 | 50 | 10 | 0 | 35 | 95 | *38.33* |
| **DΔ total Export** | 0 | 0 | 55 | 50 | 10 | -20 | 0 | 20 | 95 | *23.33* |
| **DΔ out EGer** | 0 | 0 | -55 | -55 | -10 | 20 | 0 | -20 | -95 | *-23.8* |
| **DΔ out WGer** | 0 | 0 | 50 | 68.4 | 10 | 7 | 0 | 5 | 65 | *8.59* |
| **DΔ out EEur** | 0 | 0 | -10 | 0 | -5 | -2 | 0 | -10 | 0 | *-3* |
| **DΔ out EU** | 0 | 0 | 15 | -6.6 | 5 | 0 | 0 | 25 | 30 | *7.6* |
| **DΔ out WW** | 0 | 0 | 0 | -6.6 | 0 | -25 | 0 | 0 | 10 | *-2.4* |
| **DM[viii]S90** | 100 | 100 | 95 | 100 | 10 | 100 | 100 | 100 | 100 | *89.44* |
| **DM S 96** | 3[ix] | 10 | 20 | 20 | 2.6 | 7.5 | 4 | 72.5[x] | 0[xi] | *15.5* |
| **DΔMS** | -97 | -90 | -75[xii] | -80 | -7.4 | -92.5 | -96 | -27.5 | -100 | *-73.9* |
| **Dnumcomp** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | *0.88* |
| **Dbigcomp** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | *1* |
| **Dsmall comp** | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | *0.44* |
| **DC EGer** | 1[xiii] | 0 | [xiv]0 | 0 | 1 | 1 | 1 | 1 | 0 | *0.55* |
| **DC WGer** | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | *0.88* |
| **DC EEur** | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | *0.33* |
| **DC EU** | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | *0.33* |
| **DC WW** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | *0.11* |
| **DDiC price** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | *1.11* |

## Table 4a (continued):

| | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | *mean* |
|---|---|---|---|---|---|---|---|---|---|---|
| **DDiC quality** | 2.5 | 3 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1.61 |
| **DDiC punct** | 4 | 3 | 1.5 | 2 | 1 | 1 | 1 | 1 | 2 | 1.83 |
| **DDiC design** | 3[xv] | 3 | 5 | 2 | 3 | 1 | 3 | 3 | 6 | 3 |
| **Dpr95** | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0.44 |
| **Dpr97** | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0.77 |
| **Dmanufact** | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0.55 |
| **DIMPPR** | 0 | 0 | 0 | 1 | 0.5 | 0 | 0 | 0.5 | 1 | 0.33 |
| **DFDI** | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0.77 |

[i] The personnel managers of companies D1& D3 see stable and high wages as an important incentive increasing productivity. Hence he does not think that paying the lowest wages possible is desirable. Company D2 has made bad experience with cheap labour.

[ii] "Contacts are more important than geographical proximity.."

[iii] Here the manager in charge of procurement mentioned the proximity of service suppliers which had been separated out of the original Kombinat and are independent companies now.

[iv] "This would be highly desirable...but there is no solidarity with East German products. The West German lobbies have more power in East German local government, than the lobbies representing local industry have...." The in company D2 has a similar opinion when he states that in practice the company receives no support from the local government.

[v] Company D5 describes its relationship with the local government as good since it is one of the biggest employers in that quarter of Berlin and are thus in regular contact with the authorities

[vi] The Senate is the main customer of company D7, thus its competence is very important to this company. A manager in company D9 however stated: "If this was of any importance at all to our success, then we would have long left Brandenburg."

[vii] D5 and D8 export to subsidiaries of the investor which are located in the European Union.

[viii] For both 1990 and 1996 the market share figures refer to the East German market or to relevant sub-segments of it. The three building companies D1, D2 and D7 had markets which only extended to the greater Berlin area or, in the case of D2, to a quarter of Berlin only. However, within each of these sub-markets the company in question still had a monopoly position.

[ix] Values for D1, D2 and D4 are estimates provided by interview partners when they were pushed to make a personal guess. In these companies the prevalent sentiment was that the relevant markets had changed so much beyond recognition that one could not really compare market shares. D2's relatively large market share refers to its position within the quarter of Berlin it was originally operating in. By 1997 D2 has extended its operations to the entire Berlin area, for which market its market share is very close to zero.

[x] This summary statistic hides a share of the East German market of 60% for new turbines and 85% for servicing old ones. The company also has acquired a 30% market share in Eastern Europe for servicing turbines.

[xi] Although the East German market for gears ceased to exist with the traditional East German car industry, D9 has managed to acquired a 1.5 market share of the West German market. From what I gather the West German market seems to be a duopoly, so that D9 faces only one, but much larger, competitor there.

[xii] It should be noted that we are dealing with a rapidly shrinking market here. Before 1990, D3 had a market share of 2% in West Germany. By 1996 this has increased in 10%.

[xiii] D1's main competitors are new subsidiaries of West German companies, there has been a 1 to 1 import of the West German market structure.

[xiv] It is interesting in this context that D3 seems to be entirely unconcerned about competitors in West Germany, but very much about Scandinavian, Italian, Polish and Hungarian competitors. This probably indicates collusion in the (West) German steel processing sector.

[xv] Companies D1, D2 and D7 do not directly engage in design activities, but rather purchase these from architects, who work in separate companies. It is, however, of importance that the company collaborates with good architects.

## Table 4b: Summary of the data on the Hungarian companies' product markets

| | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | *mean* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hhqual** | 1 | 1 | 1 | 1 | 1 | 0.5 | 1 | 0.5 | 1 | 1 | 1 | *0.90* |
| **Hcheap** | 1 | 0.5 | 0.5 | 0.5 | 1 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | *0.59* |
| **Hcustprox** | 1 | 0.5 | 0.5 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1 | *0.63* |
| **Hinprox** | 1 | 1 | 1 | 0.5 | 1 | 1 | 0.5 | 0.5 | 0.5 | 1 | 0 | *0.72* |
| **Hservprox** | 1 | 1 | 1 | 1 | 0.5 | 1 | 1i | 1 | 0.5 | 0.5 | 1 | *0.86* |
| **Hranddprox** | 0ii | 0.5 | 0.5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | *0.36* |
| **Hlocalgov** | 0 | 0.5 | 0 | 1 | 0 | 0 | 0.5 | 0 | 0 | 0.5 | 1 | *0.31* |
| **Hinfrastr** | 1 | 1 | 1 | 1 | 0 | 0.5 | 1 | 1 | 0.5 | 1 | 1 | *0.81* |
| **H%out90Hung** | 40 | 97 | 92 | 40 | 50 | 15 | 35 | 93 | 75 | 87 | 90 | *64.9* |
| **H% out 90EEur** | 36[iii] | 3 | 1[iv] | 30 | 8[v] | 80 | 10 | 4 | 20 | 10 | 3 | *18.6* |
| **H% out 90EU** | 0 | 0 | 4 | 10 | 30 | 0 | 30 | 3 | 0 | 0 | 7 | *7.6* |
| **H%90 out WW** | 24 | 0 | 3 | 20 | 12 | 5 | 25 | 0 | 5 | 3 | 0 | *8.8* |
| **H90Totol Exp** | 60 | 3 | 8 | 60 | 50 | 85 | 65 | 7 | 25 | 13 | 10 | *35* |
| **H% out 96Hung** | 40 | 97 | 65 | 35 | 50 | 10 | 10 | 84 | 80[vi] | 99 | 85 | *59.5* |
| **H% out 96EEur** | 60 | 3 | 25 | 27 | 8 | 70 | 3[vii] | 10 | 20 | 1 | 0 | *20.6* |
| **H%96 out EU** | 0 | 0 | 10 | 15 | 30 | 5 | 45 | 6 | 0 | 0 | 15 | *11.5* |
| **H%96 out WW** | 0 | 0 | 0 | 23 | 12 | 15 | 42 | 0 | 0 | 0 | 0 | *8.3* |
| **HTotalExp96** | 60 | 3 | 35 | 65 | 50 | 90 | 90 | 16[viii] | 20 | 1 | 15 | *40.4* |
| **HΔ total Export** | 0 | 0 | 27 | 5 | 0 | 5[ix] | 25 | 9 | -5 | -12 | 5 | *5.4* |
| **HΔ Hung** | 0 | 0 | -27 | -5 | 0 | -5 | -25 | -9 | 5 | 12 | -5 | *-5.4* |
| **HΔ EEur** | 24 | 0 | 24 | -3 | 0 | -10 | -7 | 6 | 0 | -9 | -3 | *2* |
| **HΔ EU** | 0 | 0 | 10 | 5 | 0 | 5 | 15 | 3 | 0 | 0 | 8 | *4.18* |
| **HΔ WW** | -24 | 0 | -3 | 3 | 0 | 10 | 17 | 0 | -5 | -3 | 0 | *-0.45* |
| **HMS90** | 100 | 90[x] | 5[xi] | 75 | 78[xii] | 98 | 78 | 45 | 5 | 25[xiii] | 100 | *63.5* |
| **HMS96** | 100 | 80 | 10 | 25 | 78 | 90 [xiv] | 85 | 60 | 3 | 5 | 85[xv] | *56.5* |
| **HΔ MS** | 0 | -10 | 5 | -50 | 0 | -8 | 7 | 15 | -2 | -20 | -15 | *-7.00* |
| **Hnumcomp** | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | *0.72* |
| **Hsmallcom** | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | *0.54* |
| **Hbigcomp** | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | *0.90* |
| **HCHung** | 1 | 1 | 1[xvi] | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | *0.54* |
| **HCEEur** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | *0.09* |
| **HCEU** | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | *0.81* |
| **HCWW** | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | *0.36* |
| **HDiCprice** | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | *1.36* |
| **HDiCquality** | 1 | 2 | 3 | 1 | 1 | 1 | 1.5 | 1 | 2 | 1 | 1 | *1.41* |
| **HDiC punct** | 4 | 3 | 3 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | *1.91* |
| **HDiCdesign** | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 4[xvii] | 2 | 2 | 4.5[xviii] | *2.41* |
| **Hpr96** | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | *0.54* |
| **Hfood** | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *0.27* |
| **Hfdi** | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | *0.63* |
| **Himppr** | 0.5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | *0.41* |

i H7 especially emphasises the importance of being close to the providers of ancillary services and of packaging materials as well as the importance of a well-developed regional infrastructure.

ii "We have our own internal R&D department."

iii H1's MD is keen to stress that these exports went and continue to go to Central (the Czech Republic, Austria, Switzerland and the Ukraine) rather than Eastern Europe. The company's world wide exports went to Algeria and Egypt and although they have ceased to exist by 1996, the MD states that the company has no intention of rebuilding these exports.

iv H3 explains its low exports to Eastern Europe in 1990 by stating that it offers better quality at higher prices than local producers. The export growth experienced by 1996 in the Eastern European category has been mainly to Central Europe. Exports to the European Union are mainly via the investor.

v H5a exported to the USSR not directly but via western intermediaries (and continues to do so). Its exports to the rest of the world are mainly to the USA and Asia.

vi By 2001 H9 is hoping to sell only 65% of its output in Hungary, 25% in Eastern Europe and regain the 5% world-wide sales it has lost.

vii The manager interviewed stated: "They (that is business partners from the former Soviet Union) cannot pay and they cannot offer us anything worth bartering for."

viii This includes direct exports by H8 only. Indirectly H8 exports about 50% of its output because the products packaged in H8's products are being exported.

ix H6's proportion of sales exported to its target markets have not changed dramatically, but its overall output has shrunk dramatically. At the company's low-point in 1996 output was at 500 buses, down from 12000 in the late 1980s. By 1997 output recovered to 1500-2000 buses. Throughout this period domestic demand has been fairly stable at 300 buses per annum, with the largest falls in orders and payment ability originating from the area of the former Soviet Union.

x H2's high market share refers to the market for instant drinks only, that is to the products of the factory visited.

xi The factory which is the core of H3 was a relatively small player in the Hungarian sweets industry in 1990. Furthermore it has always produced a multitude of products, without having a dominant role in any product group except in edible Christmas decorations.

xii H5a's market share depends on its product groups. In petrochemicals (that is input production) it has a monopoly and imports account for 10% of the market only, while in plastic processing it has a market share of 67% only. 78% is the average of 90% and 67%.

xiii H10's low market share in 1990 was due to the fact that the civil engineering sector had quite a few companies operating, typically on a regional basis, in it already. For the future the interview partner stated: "We haven't got much of a chance in terms of market share really. We are big enough to be tolerated as a bystander by the cartel operated by Western firms' subsidiaries, but small enough for them not to see us as a threat and to do us in. If we grew any bigger, they would cease to tolerate us."

xiv H6's market share in the Eastern European market is still, depending on the country concerned, 50-100%. Consequently its large falls in total sales are due to large falls in demand, rather than the loss of market share to competitors.

xv In 1996/7 H11 still had a legal monopoly on the supply of gas. This is likely to change, but H11 seems overall unconcerned about the impending legal changes. In petrol its market share has fallen to 70% due to entry by multinationals who are building up petrol station networks. These multinationals have to frequently, however, buy petrol from H11 because of the high transportation costs and the import taxes they face. H11 has also invested into upgrading its own chain of petrol stations and is fairly confident that it will be, given favourable legislation, able to sustain its market share. The large number of competitors H11 faces refers to the petrol market. The small competitors originate from "the illegal (blending) activities of individuals", which were especially rampant during the oil embargo during the Yugoslav war.

xvi The Hungarian competitors are almost all subsidiaries of western companies. The same statement holds for H10 and for the Eastern European (especially Polish) competitors of H7.

xvii Design is unimportant because it is usually supplied by the customer.

xviii 4.5 is the average of 6 for lubricants and 3 for petrol stations.

## Table 5a: Correlation matrix 1: Regional characteristics[i]

| | Dcheap | Dcustprox | Dinprox | Dservprox | Dranddprox | Dlocalgov | Dinfrastr |
|---|---|---|---|---|---|---|---|
| **Dcheap** | 1.00 | | | | | | |
| **Dcustprox** | 0.00 | 1.00 | | | | | |
| **Dinprox** | -0.19 | **0.65*nc** | 1.00 | | | | |
| **Dservprox** | 0.29 | 0.17 | 0.16 | 1.00 | | | |
| **Dranddprox** | -0.25 | -0.43 | -0.24 | 0.00 | 1.00 | | |
| **Dlocalgov** | -0.09 | 0.16 | 0.22 | 0.00 | 0.36 | 1.00 | |
| **Dinfrastr** | 0.23 | **-0.60*nc** | **-0.63*nc** | -0.20 | -0.23 | **-0.64*nc** | 1.00 |
| **D%out 90EGer** | 0.46 | **0.57*t** | **0.53*t** | 0.09 | **-0.63**t** | 0.08 | -0.36 |
| **D%out 90EEur** | -0.19 | -0.43 | -0.28 | 0.27 | **0.88***t** | 0.12 | 0.02 |
| **D%out 90WGer** | -0.37 | -0.25 | -0.35 | 0.13 | -0.18 | -0.19 | 0.42 |
| **D%out 90EurU** | -0.25 | -0.43 | -0.24 | -0.43 | -0.13 | 0.36 | 0.29 |
| **D%out 90 WW** | -0.32 | -0.11 | -0.30 | **-0.55*t** | -0.16 | -0.35 | 0.36 |
| **DTotal Exp90** | -0.46 | **-0.57*t** | **-0.53*t** | -0.09 | **0.63**t** | -0.08 | 0.36 |
| **D%out 96EGer** | -0.10 | **0.83***t** | **0.58*t** | -0.11 | -0.11 | 0.35 | **-0.64**t** |
| **D%out96 EEur** | -0.24 | -0.45 | -0.27 | 0.09 | **0.98***t** | 0.26 | -0.13 |
| **D%out 96WGer** | -0.03 | **-0.68**t** | **-0.53*t** | -0.08 | -0.17 | -0.30 | **0.61**t** |
| **D%out 96EurU** | **0.63**t** | -0.42 | -0.20 | **0.48*t** | -0.10 | **-0.54*t** | **0.53*t** |
| **D%out 96 WW** | **0.50*t** | -0.43 | -0.24 | 0.00 | -0.13 | -0.45 | 0.29 |
| **DTotal Exp 96** | 0.10 | **-0.83***t** | **-0.58*t** | 0.11 | 0.11 | -0.35 | **0.64**t** |
| **DΔ total Export** | 0.31 | **-0.62**t** | -0.38 | 0.18 | -0.14 | -0.35 | **0.51*t** |
| **DΔ out EGer** | -0.29 | **0.63**t** | 0.38 | -0.16 | 0.14 | 0.33 | **-0.51*t** |
| **DΔ out WGer** | 0.01 | **-0.71**t** | **-0.53*t** | -0.10 | -0.16 | -0.30 | **0.61**t** |
| **DΔ out EEur** | -0.06 | 0.17 | 0.16 | **-0.60**t** | -0.17 | 0.31 | -0.40 |
| **DΔ out EU** | **0.63**t** | -0.32 | -0.14 | **0.53*t** | -0.08 | **-0.57*t** | 0.45 |
| **DΔ out WW** | 0.45 | -0.05 | 0.18 | **0.48*t** | 0.10 | 0.15 | -0.22 |
| **DMS 90** | 0.27 | 0.44 | 0.25 | -0.02 | -1.00 | -0.34 | 0.21 |
| **DM S 96** | 0.33 | -0.04 | 0.13 | 0.37 | -0.21 | -0.08 | 0.42 |
| **DΔMS** | -0.01 | -0.41 | -0.14 | 0.27 | **0.75***t** | 0.25 | 0.09 |
| **Dnumcomp** | -0.50 | 0.43 | 0.24 | 0.00 | 0.13 | 0.45 | -0.29 |
| **Dsmall comp** | -0.16 | -0.55 | -0.33 | -0.27 | 0.40 | 0.14 | 0.40 |
| **DC EGer** | 0.16 | 0.27 | 0.06 | 0.27 | 0.32 | 0.37 | -0.40 |
| **DC WGer** | 0.25 | 0.00 | 0.24 | -0.43 | 0.13 | 0.45 | -0.29 |
| **DC EEur** | 0.00 | 0.00 | -0.19 | 0.29 | -0.25 | **-0.63**t** | **0.57*t** |
| **DC EU** | 0.00 | 0.00 | -0.19 | 0.29 | -0.25 | **-0.63**t** | **0.57*t** |
| **DC WW** | -0.25 | 0.00 | -0.24 | -0.43 | -0.13 | -0.45 | 0.29 |
| **DDiC price** | **0.50*t** | -0.43 | -0.24 | 0.00 | -0.13 | -0.45 | 0.29 |
| **DDiC quality** | -0.27 | **0.83***t** | **0.72**t** | 0.09 | -0.29 | 0.15 | **-0.65**t** |
| **DDiC punct** | -0.35 | 0.41 | **0.78***t** | 0.07 | -0.29 | 0.21 | **-0.62**t** |
| **DDiC design** | **0.57**t** | -0.22 | 0.00 | 0.33 | 0.00 | -0.20 | 0.00 |
| **Dpr95** | -0.16 | 0.55 | 0.48 | 0.00 | 0.40 | **0.65*nc** | **-0.91***nc** |
| **Dpr97** | 0.38 | 0.00 | 0.36 | 0.00 | 0.19 | **0.68**nc** | -0.43 |
| **Dmanufacturing** | 0.16 | **-0.82***nc** | -0.48 | 0.27 | 0.32 | -0.14 | 0.58 |
| **DFDI** | -0.19 | -0.33 | 0.36 | 0.33 | 0.19 | 0.07 | -0.04 |
| **DIMPPR** | 0.29 | **-0.83***nc** | -0.38 | -0.17 | 0.14 | 0.05 | 0.46 |

## Correlation matrix 2: The geographical distribution of sales in 1990 and 1996

| | D%out 90EGer | D%out 90EEur | D%out 90WGer | D%out 90EurU | D%out 90 WorldW | DTotal Export 90 | D%out 96EGer | D%out96 EEur | D%out 96WGer | D%out 96EurU | D%out 96 WorldW |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D%out90EGer | 1.00 | | | | | | | | | | |
| D%out90EEur | -0.77***t | 1.00 | | | | | | | | | |
| D%out90WGer | -0.31 | 0.03 | 1.00 | | | | | | | | |
| D%out90EU | -0.14 | -0.23 | 0.47 | 1.00 | | | | | | | |
| D%out 90 WW | -0.42 | -0.15 | -0.06 | 0.14 | 1.00 | | | | | | |
| DTotal Exp90 | -1.00***t | 0.77***t | 0.31 | 0.14 | 0.42 | 1.00 | | | | | |
| D%out96EGer | 0.29 | -0.22 | -0.57*t | -0.36 | 0.18 | -0.29 | 1.00 | | | | |
| D%out96EEur | -0.72***t | 0.95***t | -0.11 | -0.18 | -0.12 | 0.72**t | -0.15 | 1.00 | | | |
| D%out96WGer | -0.12 | -0.13 | 0.71**t | 0.59**t | -0.05 | 0.12 | -0.91***t | -0.17 | 1.00 | | |
| D%out96EU | 0.09 | 0.14 | 0.03 | -0.26 | -0.33 | -0.09 | -0.63**t | -0.02 | 0.38 | 1.00 | |
| D%out 96 WW | 0.35 | -0.23 | -0.18 | -0.13 | -0.16 | -0.35 | -0.56*t | -0.18 | 0.47 | 0.68**t | 1.00 |
| DTotal Exp 96 | -0.29 | 0.22 | 0.57*t | 0.36 | -0.18 | 0.29 | -1.00***t | 0.15 | 0.91***t | 0.63**t | 0.56*t |
| DΔ total Export | 0.13 | -0.08 | 0.45 | 0.28 | -0.37 | -0.13 | -0.91***t | -0.14 | 0.87***t | 0.71**t | 0.74**t |
| DΔ out EGer | -0.12 | 0.09 | -0.47 | -0.32 | 0.36 | 0.12 | 0.92***t | 0.14 | -0.89***t | -0.69**t | -0.72**t |
| DΔ out WGer | -0.09 | -0.14 | 0.65**t | 0.58*t | -0.05 | 0.09 | -0.91***t | -0.17 | 1.00***t | 0.41 | 0.54*t |
| DΔ out EEur | 0.51*t | -0.62**t | -0.39 | 0.26 | 0.16 | -0.51*t | 0.29 | -0.35 | -0.04 | -0.48*t | 0.26 |
| DΔ out EU | 0.11 | 0.17 | -0.05 | -0.42 | -0.33 | -0.11 | -0.53*t | 0.01 | 0.26 | 0.99***t | 0.66**t |
| DΔ out WW | 0.49*t | 0.05 | -0.01 | -0.17 | -0.94***t | -0.49*t | -0.36 | 0.05 | 0.21 | 0.53*t | 0.49*t |
| DMS 90 | 0.64**t | -0.90***t | 0.14 | 0.13 | 0.17 | -0.64**t | 0.14 | -0.99***t | 0.15 | 0.09 | 0.13 |
| DM S 96 | -0.11 | 0.15 | 0.11 | 0.07 | -0.11 | 0.11 | -0.07 | -0.08 | -0.05 | 0.44 | -0.26 |
| DΔMS | -0.65**t | 0.90***t | -0.05 | -0.07 | -0.23 | 0.65**t | -0.17 | 0.83***t | -0.17 | 0.22 | -0.29 |
| Dnumcomp | -0.35 | 0.23 | 0.18 | 0.13 | 0.16 | 0.35 | 0.56*t | 0.18 | -0.47 | -0.68**t | -1.00***t |
| Dsmall comp | -0.73***t | 0.47 | -0.05 | 0.40 | 0.50*t | 0.73**t | -0.10 | 0.45 | -0.01 | -0.07 | -0.32 |
| DC EGer | -0.20 | 0.32 | -0.58*t | -0.40 | 0.21 | 0.20 | 0.60**t | 0.34 | -0.75***t | -0.23 | -0.40 |
| DC WGer | 0.26 | -0.19 | -0.81***t | 0.13 | 0.16 | -0.26 | 0.41 | 0.01 | -0.42 | -0.21 | 0.13 |
| DC EEur | -0.44 | 0.19 | 0.30 | -0.25 | 0.43 | 0.44 | -0.07 | -0.07 | -0.02 | 0.31 | -0.25 |
| DC EU | -0.44 | 0.19 | 0.30 | -0.25 | 0.43 | 0.44 | -0.07 | -0.07 | -0.02 | 0.31 | -0.25 |
| DC WW | -0.38 | -0.09 | -0.18 | -0.13 | 0.97***t | 0.38 | 0.28 | -0.08 | -0.21 | -0.26 | -0.13 |
| DDiC price | 0.35 | -0.23 | -0.18 | -0.13 | -0.16 | -0.35 | -0.56*t | -0.18 | 0.47 | 0.68**t | 1.00***t |
| DDiC quality | 0.57*t | -0.37 | -0.01 | -0.29 | -0.37 | -0.57*t | 0.55*t | -0.34 | -0.38 | -0.41 | -0.29 |
| DDiC punct | 0.58*t | -0.48*t | -0.07 | 0.06 | -0.28 | -0.58*t | 0.24 | -0.39 | -0.06 | -0.25 | 0.06 |
| DDiC design | 0.49*t | -0.07 | -0.17 | -0.28 | -0.64**t | -0.49*t | -0.47 | -0.05 | 0.31 | 0.71**t | 0.85***t |
| Dpr95 | 0.28 | 0.12 | -0.47 | -0.32 | -0.40 | -0.28 | 0.64**t | 0.29 | -0.66**t | -0.56*t | -0.32 |
| Dpr97 | 0.48*t | -0.07 | -0.48*t | 0.19 | -0.61**t | -0.48*t | 0.10 | 0.07 | -0.16 | 0.04 | 0.19 |
| Dmanufacturing | -0.43 | 0.50*t | 0.47 | 0.32 | -0.31 | 0.43 | -0.89***t | 0.38 | 0.68**t | 0.66**t | 0.32 |
| DFDI | 0.02 | 0.25 | 0.28 | 0.19 | -0.61**t | -0.02 | -0.50*t | 0.19 | 0.38 | 0.39 | 0.19 |
| DIMPPR | -0.08 | 0.05 | 0.08 | 0.58*t | -0.14 | 0.08 | -0.74**t | 0.10 | 0.66**t | 0.48*t | 0.58*t |

## Correlation matrix 3: Changes in the companies' sales & export orientation and market share

| | DTotal Export 96 | DΔ total Export | DΔ out EGer | DΔ out WGer | DΔ out EEur | DΔ out EU | DΔ out WW | DMS 90 | DMS96 | DΔMS | Dnum comp |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DTotal Exp 96 | 1.00 | | | | | | | | | | |
| DΔ total Export | **0.91***t** | 1.00 | | | | | | | | | |
| DΔ out EGer | **-0.92***t** | **-1.00***t** | 1.00 | | | | | | | | |
| DΔ out WGer | **0.91***t** | **0.89***t** | **-0.91***t** | 1.00 | | | | | | | |
| DΔ out EEur | -0.29 | -0.10 | 0.09 | 0.00 | 1.00 | | | | | | |
| DΔ out EU | **0.53*t** | **0.62**t** | **-0.59**t** | 0.29 | **-0.50*t** | 1.00 | | | | | |
| DΔ out WW | 0.36 | **0.59**t** | **-0.58*t** | 0.23 | -0.05 | **0.53*t** | 1.00 | | | | |
| DMS 90 | -0.14 | 0.12 | -0.12 | 0.15 | 0.21 | 0.06 | -0.10 | 1.00 | | | |
| DM S 96 | 0.07 | 0.03 | -0.03 | -0.07 | **-0.69**t** | 0.41 | 0.01 | 0.21 | 1.00 | | |
| DΔMS | 0.17 | -0.09 | 0.09 | -0.18 | **-0.65**t** | 0.22 | 0.10 | **-0.75***t** | **0.49*t** | 1.00 | |
| Dnumcomp | **-0.56*t** | **-0.74**t** | **0.72**t** | **-0.54*t** | -0.26 | **-0.66**t** | **-0.49*t** | -0.13 | 0.26 | 0.29 | 1.00 |
| Dsmall comp | 0.10 | -0.22 | 0.20 | -0.01 | -0.28 | -0.13 | **-0.55*t** | -0.38 | 0.43 | **0.63**t** | 0.32 |
| DC EGer | **-0.60**t** | **-0.70**t** | **0.71**t** | **-0.74**t** | -0.11 | -0.15 | -0.33 | -0.30 | 0.13 | 0.35 | 0.40 |
| DC WGer | -0.41 | -0.33 | 0.32 | -0.35 | 0.61 | -0.22 | -0.10 | -0.07 | -0.07 | 0.01 | -0.13 |
| DC EEur | 0.07 | -0.10 | 0.11 | -0.06 | **-0.76***t** | 0.34 | -0.47 | 0.22 | **0.59**t** | 0.20 | 0.25 |
| DC EU | 0.07 | -0.10 | 0.11 | -0.06 | **-0.76***t** | 0.34 | -0.47 | 0.22 | **0.59**t** | 0.20 | 0.25 |
| DC WW | -0.28 | -0.45 | 0.45 | -0.20 | 0.09 | -0.22 | **-0.90***t** | 0.13 | -0.13 | -0.21 | 0.13 |
| DDiC price | **0.56**t** | **0.74**t** | **-0.72**t** | **0.54*t** | 0.26 | **0.66**t** | **0.49*t** | 0.13 | -0.26 | -0.29 | **-1.00***t** |
| DDiC quality | **-0.55*t** | -0.32 | 0.33 | -0.41 | 0.24 | -0.34 | 0.22 | 0.28 | -0.26 | -0.43 | 0.29 |
| DDiC punct | -0.24 | -0.01 | 0.01 | -0.05 | **0.48*t** | -0.24 | 0.27 | 0.30 | -0.30 | -0.47 | -0.06 |
| DDiC design | 0.47 | **0.72**t** | **-0.69**t** | 0.36 | 0.09 | **0.72**t** | **0.86***t** | 0.00 | -0.15 | -0.10 | **-0.85***t** |
| Dpr95 | **-0.64**t** | **-0.54*t** | **0.55*t** | **-0.66**t** | 0.39 | -0.47 | 0.24 | -0.38 | -0.45 | 0.04 | 0.32 |
| Dpr97 | -0.10 | 0.09 | -0.10 | -0.11 | 0.40 | 0.00 | 0.60 | -0.15 | 0.04 | 0.17 | -0.19 |
| Dmanufacturing | **0.89***t** | **0.74**t** | **-0.74**t** | **0.68**t** | **-0.55*t** | **0.57**t** | 0.39 | -0.34 | 0.39 | **0.57*t** | -0.32 |
| DFDI | **0.50*t** | **0.52*t** | **-0.52*t** | 0.37 | -0.26 | 0.34 | **0.60**t** | -0.20 | 0.25 | 0.34 | -0.19 |
| DIMPPR | **0.74**t** | **0.72**t** | **-0.73**t** | **0.71**t** | 0.10 | 0.35 | 0.32 | -0.13 | 0.14 | 0.21 | **-0.58*t** |

## Correlation matrix 4: Origin of competitors and the main dimensions of competition

| | Dsmall comp | DC EGer | DC WGer | DC EEur | DC EU | DC WW | DDi price | DDi quality | DDi punct | DDi design | Dpr95 | Dpr97 | Dmanufacturing | DIMPPR | DFDI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dsmall comp** | 1.00 | | | | | | | | | | | | | | |
| **DC Eger** | 0.35 | 1.00 | | | | | | | | | | | | | |
| **DC Wger** | 0.32 | 0.40 | 1.00 | | | | | | | | | | | | |
| **DC Eeur** | 0.32 | 0.16 | -0.50 | 1.00 | | | | | | | | | | | |
| **DC EU** | 0.32 | 0.16 | -0.50 | **1.00 ***nc** | 1.00 | | | | | | | | | | |
| **DC WW** | 0.40 | 0.32 | 0.13 | 0.50 | 0.50 | 1.00 | | | | | | | | | |
| **DDiC price** | -0.32 | -0.40 | 0.13 | -0.25 | -0.25 | -0.13 | 1.00 | | | | | | | | |
| **DDiC quality** | **-0.74 **t** | -0.17 | -0.19 | -0.27 | -0.27 | -0.29 | -0.29 | 1.00 | | | | | | | |
| **DDiC punct** | **-0.52 *t** | -0.26 | 0.12 | -0.47 | -0.47 | -0.29 | 0.06 | **0.67 **t** | 1.00 | | | | | | |
| **DDiC design** | **-0.54 *t** | -0.36 | 0.00 | -0.38 | -0.38 | -0.57 | **0.85 **t** | 0.00 | 0.18 | 1.00 | | | | | |
| **Dpr95** | -0.35 | 0.35 | 0.32 | **-0.63 *nc** | **-0.63 *nc** | -0.32 | -0.32 | **0.62 **t** | 0.37 | 0.00 | 1.00 | | | | |
| **Dpr97** | -0.06 | 0.06 | **0.66 *nc** | **-0.76 **nc** | **-0.76 **nc** | **-0.66 *nc** | 0.19 | 0.08 | 0.31 | 0.43 | 0.48 | 1.00 | | | |
| **Dmanufacturing** | 0.35 | -0.35 | -0.32 | 0.16 | 0.16 | -0.40 | 0.32 | **-0.62 **t** | -0.37 | 0.36 | -0.55 | 0.06 | 1.00 | | |
| **DIMPPR** | -0.06 | -0.48 | -0.19 | -0.19 | -0.19 | **-0.66 *nc** | 0.19 | 0.08 | 0.45 | 0.43 | -0.06 | 0.36 | 0.60 | 1.00 | |
| **DFDI** | 0.37 | -0.37 | 0.29 | -0.29 | -0.29 | -0.29 | **0.58 **t** | **-0.68 **t** | -0.14 | 0.44 | -0.46 | 0.44 | **0.73 **nc** | 0.44 | 1.00 |

[i] The associations involving Dranddprox merely reflect D5 rather than more general trends. I treated the regional variables as 0, 0.5, 1 dummies. When obtaining significance levels for associations involving two dummies I have to either merge the 0.5 cells of the relevant contingency table with another row or entirely drop them. This is a consequence of the very low number of observations, allowing only for 2 by 2 tables. For the regional dummies I make the simplifying assumption that 0.5 = 0. The intuitive justification is that interview partners usually had a firm opinion on which factors were clearly important to their competitive success, but were frequently more hesitant in distinguishing between unimportant and slightly important factors. Generally several simplifying assumptions were tested for the 0.5 observations of other dummies, they are explicitly referred to. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-10\%)} = 2.7$, $X^2_{(critical-5\%)} = 3.84$, $X^2_{(critical-1\%)} = 6.63$. I find that generally all association below 0.60 tend to be insignificant. For associations of 0.65 uncorrected test statistics were obtained which oscillated between the 10% and 5% significance level, depending on the simplifying assumption. Associations of 0.66 generated uncorrected test statistics of 3.95 [5% level], while the corrected ones were insignificant. Associations of 0.73 generate test statistics of 5.10 [5% - obtained by dropping 0.5 observations]. Associations of 0.76 generate uncorrected test statistics of about 5.19 [5%]. Associations above 0.82 generate uncorrected test statistics of at least 7.14 [1%] and their corrected test statistics are also significant at the 10% and for the 0.91 association at the 5% level [0.5 =0]. For associations between continuous & dummy variables as well as between two continuous variables the relevant test statistics are: $t'_{0.10} = 1.41$, $t'_{0.05} = 1.89$, $t'_{0.01} = 2.99$. I find that in both cases all associations above 0.48 (t= 1.44) are significant at the 10% level, associations above 0.59 (t= 1.93) are significant at the 5% level and associations above 0.75 (t= 3.00) are significant at the 1% level.

## Table 5b: Correlation matrix 1: Regional characteristics[i]

| | Hhqual | Hcheap | Hcustprox | Hinprox | Hservprox | Hranddprox | Hlocalgov | Hinfrastr |
|---|---|---|---|---|---|---|---|---|
| **Hhqual** | 1.00 | | | | | | | |
| **Hcheap** | **0.54**nc** | 1.00 | | | | | | |
| **Hcustprox** | 0.29 | 0.29 | 1.00 | | | | | |
| **Hinprox** | -0.03 | 0.42 | -0.42 | 1.00 | | | | |
| **Hservprox** | -0.29 | -0.29 | 0.38 | -0.20 | 1.00 | | | |
| **Hranddprox** | 0.40 | -0.15 | 0.43 | **-0.58**nc** | **0.52*nc** | 1.00 | | |
| **Hlocalgov** | 0.39 | -0.15 | **0.55**nc** | **-0.57**nc** | 0.24 | **0.81***nc** | 1.00 | |
| **Hinfrastr** | 0.10 | -0.45 | 0.35 | -0.25 | **0.61**nc** | 0.48 | 0.47 | 1.00 |
| **H%out90Hung** | 0.18 | **-0.43*t** | -0.18 | -0.17 | -0.13 | 0.00 | 0.10 | 0.35 |
| **H% out 90EEur** | **-0.49*t** | 0.17 | 0.12 | 0.26 | 0.16 | -0.28 | -0.22 | -0.26 |
| **H% out 90EU** | 0.26 | 0.31 | -0.11 | -0.14 | -0.13 | 0.35 | 0.11 | -0.38 |
| **H%90 out WW** | 0.32 | **0.51*t** | 0.38 | 0.04 | 0.14 | 0.25 | 0.08 | 0.02 |
| **H90Totol Exp** | -0.18 | **0.43*t** | 0.18 | 0.17 | 0.13 | 0.00 | -0.10 | -0.35 |
| **H% out 96Hung** | 0.19 | -0.30 | -0.12 | -0.10 | -0.33 | -0.18 | 0.11 | 0.22 |
| **H% out 96EEUr** | -0.40 | 0.29 | 0.22 | 0.39 | 0.29 | -0.36 | **-0.43*t** | -0.15 |
| **H%96 out EU** | 0.20 | 0.16 | -0.06 | -0.27 | 0.06 | **0.52*t** | 0.21 | -0.20 |
| **H%96 out WW** | 0.03 | 0.05 | -0.03 | -0.16 | 0.20 | **0.51*t** | 0.26 | -0.06 |
| **HTotalExp96** | -0.19 | 0.30 | 0.12 | 0.10 | 0.33 | 0.18 | -0.11 | -0.22 |
| **HΔ total Export** | -0.07 | -0.23 | -0.11 | -0.15 | **0.61**t** | **0.51*t** | -0.05 | 0.27 |
| **HΔ Hung** | 0.07 | 0.23 | 0.11 | 0.15 | **-0.61**t** | **-0.51*t** | 0.05 | -0.27 |
| **HΔ EEur** | 0.17 | 0.25 | 0.22 | 0.27 | 0.27 | -0.17 | **-0.44*t** | 0.23 |
| **HΔ EU** | 0.02 | -0.26 | 0.02 | -0.40 | **0.53**t** | **0.71***t** | 0.29 | 0.34 |
| **HΔ WW** | -0.27 | **-0.43*t** | **-0.42*t** | -0.26 | 0.14 | **0.45*t** | 0.28 | -0.10 |
| **HMS90** | -0.11 | 0.35 | **0.49*t** | -0.09 | **0.48*t** | 0.28 | 0.33 | -0.02 |
| **HMS96** | -0.24 | 0.30 | 0.23 | -0.02 | **0.47*t** | 0.08 | -0.02 | -0.09 |
| **HΔ MS** | -0.30 | -0.08 | **-0.54*t** | 0.15 | 0.01 | -0.41 | **-0.73***t** | -0.16 |
| **Hnumcomp** | -0.29 | **-0.69**nc** | -0.08 | -0.20 | 0.08 | 0.04 | 0.24 | 0.29 |
| **Hsmallcom** | 0.04 | 0.16 | **0.56*nc** | 0.08 | **0.67**nc** | 0.35 | 0.28 | 0.34 |
| **Hbigcomp** | -0.15 | **-0.56**t** | -0.52 | -0.26 | -0.19 | 0.27 | 0.26 | -0.18 |
| **HCHung** | **0.52**t** | 0.16 | 0.15 | 0.35 | -0.15 | -0.08 | 0.04 | 0.34 |
| **HCEEur** | 0.15 | -0.06 | -0.19 | -0.22 | 0.19 | **0.47*t** | 0.15 | 0.18 |
| **HCEU** | -0.22 | -0.38 | -0.24 | -0.39 | 0.24 | 0.40 | 0.08 | -0.27 |
| **HCWW** | -0.13 | -0.13 | 0.39 | -0.24 | **0.46*t** | **0.46*t** | **0.60**t** | 0.13 |
| **HDiCprice** | -0.13 | -0.13 | **-0.46*t** | 0.05 | **-0.81***t** | **-0.64**t** | -0.38 | **-0.45*t** |
| **HDiCquality** | 0.30 | -0.11 | -0.40 | 0.21 | 0.07 | 0.12 | -0.25 | 0.14 |
| **HDiC punct** | 0.19 | 0.37 | **0.47*t** | 0.34 | **0.56**t** | 0.08 | -0.04 | 0.37 |
| **HDiCdesign** | -0.26 | **-0.57**t** | **0.44*t** | **-0.85***t** | **0.43*t** | **0.47*t** | **0.46*t** | **0.48*t** |
| **Hpr96** | 0.04 | 0.16 | **0.56**nc** | **-0.48*t** | 0.26 | 0.35 | 0.28 | 0.05 |
| **Hfood** | 0.29 | 0.29 | 0.08 | **0.51*nc** | 0.38 | -0.04 | -0.24 | 0.35 |
| **Hfdi** | **0.62**t** | 0.13 | 0.04 | 0.24 | -0.04 | 0.20 | 0.13 | **0.45*t** |
| **Himppr** | 0.41 | 0.03 | -0.32 | 0.13 | -0.34 | -0.06 | 0.03 | 0.19 |

## Correlation matrix 2: The geographical distribution of sales in 1990 and 1996

| | H%out 90Hung | H% out 90EEur | H% out 90EU | H%90 out WW | H90Total Exp | H%out 96Hung | H%out96 EEUr | H%96out EU | H%96out WW | HΔ total Export |
|---|---|---|---|---|---|---|---|---|---|---|
| H%out90Hung | 1.00 | | | | | | | | | |
| H% out 90EEur | -0.77***t | 1.00 | | | | | | | | |
| H% out 90EU | -0.36 | -0.25 | 1.00 | | | | | | | |
| H%90 out WW | -0.72***t | 0.23 | 0.51*t | 1.00 | | | | | | |
| H90Total Exp | -1.00***t | 0.77***t | 0.36 | 0.72***t | 1.00 | | | | | |
| H%out 96Hung | 0.93***t | -0.64**t | -0.46*t | -0.73***t | -0.93***t | 1.00 | | | | |
| H%out96EEUr | -0.65**t | 0.88***t | -0.36 | 0.29 | 0.65**t | -0.59**t | 1.00 | | | |
| H%96out EU | -0.38 | -0.22 | 0.96***t | 0.51*t | 0.38 | -0.54**t | -0.33 | 1.00 | | |
| H%96out WW | -0.68 | 0.21 | 0.72***t | 0.68**t | 0.68**t | -0.78***t | 0.00 | 0.81***t | 1.00 | |
| HTotalExp96 | -0.93 | 0.64**t | 0.46*t | 0.73***t | 0.93***t | -1.00***t | 0.59**t | 0.54**t | 0.78***t | 1.00 |
| HΔ total Export | -0.10 | -0.16 | 0.39 | 0.22 | 0.10 | -0.44*t | 0.00 | 0.56**t | 0.46*t | 0.44*t |
| HΔ Hung | 0.10 | 0.16 | -0.39 | -0.22 | -0.10 | 0.44*t | 0.00 | -0.56**t | -0.46*t | -0.44*t |
| HΔ EEur | 0.21 | -0.20 | -0.23 | 0.12 | -0.21 | 0.08 | 0.30 | -0.25 | -0.43 | -0.08 |
| HΔ EU | -0.18 | -0.09 | 0.43 | 0.25 | 0.18 | -0.47*t | -0.11 | 0.66**t | 0.63**t | 0.47*t |
| HΔ WW | -0.23 | 0.07 | 0.49*t | -0.04 | 0.23 | -0.36 | -0.28 | 0.61 | 0.70***t | 0.36 |
| HMS90 | -0.49*t | 0.37 | 0.22 | 0.34 | 0.49*t | -0.42*t | 0.26 | 0.24 | 0.31 | 0.42*t |
| HMS96 | -0.41 | 0.26 | 0.28 | 0.27 | 0.41 | -0.41 | 0.24 | 0.29 | 0.24 | 0.41 |
| HΔ MS | 0.16 | -0.21 | 0.13 | -0.14 | -0.16 | 0.01 | -0.02 | 0.13 | -0.13 | -0.01 |
| Hnumcomp | 0.51*t | 0.02 | -0.69***t | -0.76***t | -0.51*t | 0.52**t | -0.08 | -0.60**t | -0.45*t | -0.52*t |
| Hsmallcom | -0.10 | 0.34 | -0.41 | -0.02 | 0.10 | -0.15 | 0.49*t | -0.31 | -0.17 | 0.15 |
| Hbigcomp | 0.28 | -0.25 | 0.22 | -0.51*t | -0.28 | 0.20 | -0.54**t | 0.26 | 0.20 | -0.20 |
| HCHung | 0.27 | -0.10 | -0.53**t | 0.04 | -0.27 | 0.34 | 0.10 | -0.58 | -0.38 | -0.34 |
| HCEEur | -0.34 | -0.12 | 0.64**t | 0.55**t | 0.34 | -0.50 | -0.24 | 0.77 | 0.81***t | 0.50*t |
| HCEU | 0.02 | -0.09 | 0.33 | -0.24 | -0.02 | -0.15 | -0.20 | 0.39 | 0.30 | 0.15 |
| HCWW | -0.12 | 0.35 | -0.23 | -0.21 | 0.12 | -0.07 | 0.14 | -0.15 | 0.07 | 0.07 |
| HDiCprice | 0.31 | -0.28 | 0.04 | -0.31 | -0.31 | 0.45*t | -0.36 | -0.13 | -0.31 | -0.45*t |
| HDiCquality | 0.42*t | -0.35 | -0.15 | -0.25 | -0.42*t | 0.20 | -0.12 | -0.09 | -0.18 | -0.20 |
| HDiC punct | -0.02 | 0.17 | -0.43 | 0.14 | 0.02 | -0.06 | 0.51*t | -0.39 | -0.32 | 0.06 |
| HDiCdesign | 0.14 | -0.15 | -0.01 | -0.06 | -0.14 | 0.03 | -0.20 | 0.17 | 0.10 | -0.03 |
| Hpr96 | -0.27 | -0.17 | 0.57**t | 0.55**t | 0.27 | -0.31 | -0.13 | 0.56**t | 0.37 | 0.31 |
| Hfood | 0.25 | -0.15 | -0.35 | 0.01 | -0.25 | 0.15 | 0.23 | -0.36 | -0.39 | -0.15 |
| Hfdi | 0.08 | -0.17 | -0.16 | 0.37 | -0.08 | 0.06 | -0.05 | -0.14 | 0.09 | -0.06 |
| Himppr | 0.15 | -0.20 | -0.08 | 0.11 | -0.15 | 0.24 | -0.30 | -0.09 | 0.06 | -0.24 |

## Correlation matrix 3: Changes in the companies' sales & export orientation and market share

| | HΔ total Export | HΔ Hung | HΔ EEur | HΔ EU | HΔ WW | H MS90 | H MS96 | HΔ MS | Hnum comp |
|---|---|---|---|---|---|---|---|---|---|
| **HΔ total Export** | 1.00 | | | | | | | | |
| **HΔ Hung** | **-1.00***t** | 1.00 | | | | | | | |
| **HΔ EEur** | 0.32 | -0.32 | 1.00 | | | | | | |
| **HΔ EU** | **0.87***t** | **-0.87***t** | -0.05 | 1.00 | | | | | |
| **HΔ WW** | **0.42*t** | **-0.42*t** | **-0.71***t** | **0.61**t** | 1.00 | | | | |
| **HMS90** | -0.05 | 0.05 | -0.20 | 0.05 | 0.09 | 1.00 | | | |
| **HMS96** | 0.12 | -0.12 | -0.03 | 0.11 | 0.06 | **0.89***t** | 1.00 | | |
| **HΔ MS** | 0.37 | -0.37 | 0.38 | 0.13 | -0.05 | -0.19 | 0.27 | 1.00 | |
| **Hnumcomp** | -0.16 | 0.16 | -0.20 | -0.10 | 0.12 | -0.38 | **-0.53**t** | -0.35 | 1.00 |
| **Hsmallcom** | 0.16 | -0.16 | 0.32 | 0.11 | -0.21 | **0.45*t** | 0.26 | -0.39 | 0.26 |
| **Hbigcomp** | 0.15 | -0.15 | **-0.62**t** | 0.27 | **0.78***t** | -0.33 | -0.38 | -0.13 | **0.52**t** |
| **HCHung** | -0.28 | 0.28 | 0.39 | -0.38 | **-0.56**t** | **-0.42*t** | **-0.59**t** | -0.38 | 0.26 |
| **HCEEur** | **0.56**t** | **-0.56**t** | -0.25 | **0.71***t** | **0.57**t** | 0.13 | 0.25 | 0.27 | **-0.52**t** |
| **HCEU** | **0.48*t** | **-0.48*t** | -0.23 | 0.41 | **0.64**t** | 0.01 | 0.05 | 0.08 | 0.24 |
| **HCWW** | -0.11 | 0.11 | -0.40 | 0.05 | 0.29 | **0.58**t** | 0.28 | **-0.62**t** | **0.46*t** |
| **HDiCprice** | **-0.50*t** | **0.50*t** | -0.18 | **-0.54**t** | -0.12 | **-0.54**t** | **-0.42*t** | 0.24 | 0.04 |
| **HDiCquality** | **0.48*t** | **-0.48*t** | **0.45*t** | 0.26 | -0.01 | **-0.58**t** | **-0.43*t** | 0.29 | 0.23 |
| **HDiC punct** | 0.13 | -0.13 | **0.68**t** | -0.07 | **-0.57**t** | 0.33 | 0.29 | -0.07 | -0.06 |
| **HDiCdesign** | 0.28 | -0.28 | -0.11 | **0.48*t** | 0.20 | 0.09 | 0.07 | -0.04 | 0.24 |
| **Hpr96** | 0.19 | -0.19 | 0.08 | 0.22 | -0.02 | **0.49*t** | **0.48*t** | 0.00 | **-0.56**t** |
| **Hfood** | 0.20 | -0.20 | **0.76***t** | -0.11 | **-0.54**t** | 0.03 | 0.12 | 0.20 | -0.08 |
| **Hfdi** | 0.04 | -0.04 | 0.25 | 0.03 | -0.23 | -0.36 | **-0.46*t** | -0.23 | -0.04 |
| **Himppr** | -0.28 | 0.28 | -0.22 | -0.15 | -0.02 | -0.21 | -0.17 | 0.08 | -0.12 |

## Correlation matrix 4: Origin of competitors and the main dimensions of competition

| | Hsmall com | Hbig comp | HC Hung | HC EEur | HCEU | HCWW | HDiC price | HDiC quality | HDiC punct | HDiCdesign | Hpr96 | Hfood | Hfdi | Himppr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hsmallcom** | 1.00 | | | | | | | | | | | | | |
| **Hbigcomp** | -0.29 | 1.00 | | | | | | | | | | | | |
| **HCHung** | 0.27 | -0.29 | 1.00 | | | | | | | | | | | |
| **HCEEur** | -0.35 | 0.10 | -0.35 | 1.00 | | | | | | | | | | |
| **HCEU** | 0.04 | 0.67 | **-0.43*t** | 0.15 | 1.00 | | | | | | | | | |
| **HCWW** | **0.69***t** | 0.24 | -0.07 | -0.24 | 0.36 | 1.00 | | | | | | | | |
| **HdiCprice** | **-0.83***t** | 0.24 | -0.07 | -0.24 | -0.13 | **-0.57**t** | 1.00 | | | | | | | |
| **HdiCquality** | 0.16 | 0.20 | **0.45*t** | 0.05 | 0.30 | -0.19 | -0.19 | 1.00 | | | | | | |
| **HDiC punct** | **0.83***t** | **-0.66**t** | **0.47*t** | -0.29 | -0.28 | 0.26 | **-0.69***t** | 0.28 | 1.00 | | | | | |
| **HdiCdesign** | 0.01 | 0.12 | **-0.42*t** | 0.18 | 0.18 | 0.15 | -0.11 | -0.32 | -0.22 | 1.00 | | | | |
| **Hpr96** | -0.10 | -0.29 | **-0.47*t** | 0.29 | 0.04 | -0.07 | -0.07 | **-0.56**t** | -0.08 | **0.52*t** | 1.00 | | | |
| **Hfood** | **0.56**t** | **-0.52**t** | **0.56**t** | -0.19 | -0.24 | -0.04 | **-0.46*t** | **0.57**t** | **0.88***t** | **-0.43*t** | -0.26 | 1.00 | | |
| **Hfdi** | 0.07 | -0.24 | **0.83***t** | 0.24 | -0.36 | -0.21 | -0.21 | **0.49*t** | 0.31 | -0.33 | -0.31 | 0.46 | 1.00 | |
| **Himppr** | -0.37 | -0.06 | 0.41 | 0.40 | -0.34 | -0.26 | 0.15 | 0.20 | -0.12 | -0.34 | -0.37 | 0.12 | **0.66**nc** | 1.00 |

[i] See also the comments in the footnote to Table 3a cocnerning the simplifying assumptions needed to produce 2 by 2 tables for associations of two dummy variables. A $X^2$ distribution with 1 degree of freedom has the following critical values: $X^2_{(critical-\ 20\%)} = 1.64$, $X^2_{(critical-\ 10\%)} = 2.7$, $X^2_{(critical-\ 5\%)} = 3.84$, $X^2_{(critical-\ 1\%)} = 6.63$. The significance levels for associations involving continuous variables are as before in the Hungarian data.

| Dummies | Association | Assumption concerning 0.5 | Uncorrected chi-square statistic obtained | Significance level |
|---|---|---|---|---|
| Hfood and Hinprox | 0.51 | 1) 0.5 = 0<br>2) dropping 0.5 | **1) 3.43**, 2) 1.34 | **10%** level |
| **Hservprox and Hranddprox,** Hmanuf | 0.52 | drop Hservprox=0 column since it contains no observations, furthermore assume Hranddprox 0.5=1 | 3.43 | **10%** level |
| **Hcustprox and Hlocalgov,** Hhqual and Hcheapemp | 0.54, 0.55 | 1) 0.5 = 0<br>2) dropping 0.5 | 1) 6.54, 2) 4.43, corrected: 1.6, insignificant | **5%** level |
| Hinprox and Hlocalgov | 0.57 | 0.5 = 0 | 2.94 | **5%** level |
| Hservprox and Hinfrastr | 0.61 | drop Hservprox=0 column since it contains no observations, for Hinfrastr,1) 0.5 = 0,2) dropping 0.5 | 1) 3.24,,2) 3.94 | **5%** level |
| HFDI and HIMPPR | 0.66 | drop HIMPPR=0.5 column since only one observation in this column | 5.95, corrected: 2.01, insignificant | **5%** level |
| Hranddprox and Hlocalgov | 0.81 | 0.5= 0 | 6.54, corrected: 2.85 (10% level) | **1%** level |

## Table 6: Summary of the main statistical findings

| Question | East Germany | Hungary |
|---|---|---|
| 1. How and why has the geographical distribution of supply arrangements changed between 1990 and 1996? | The mean values of the variables indicating the geographical distribution of supply arrangements suggest that from similar starting points by 1996 strongly diverging developments have taken place in the East German and Hungarian data set. Most importantly, the Hungarian companies continue to show a much stronger reliance on their local suppliers. At the same time the fact that East German companies have been predominantly switching to suppliers from West Germany and other countries in the EU, while Hungarian companies have been experiencing a much smaller increase in their reliance on these markets. | |
| 2. How has the geographical distribution of sales changed between 1990 and 1996? In particular, have there been any noticeable changes in the companies' export orientation? | The diverging geographical shifts which have taken place in terms of input markets are mirrored in the companies' output markets. Although Hungarian companies had higher exports world-wide and to the EU in 1990, I find that by 1996 the East German companies have experienced far larger increases in their exports, especially to West Germany, and decreases in their domestic sales. | |
| 3. How has the company's competitive situation and domestic market changed between 1990 and 1996? | From similar starting points, between 1990 and 1996 the average Hungarian manufacturing company has only experienced a 3 percentage point fall in its market share, while the fall experienced by East German companies tended to be closer to 74 percentage points (significant at the 1% level), resulting in the typical East German company having a significantly (at the 1% level) lower overall market share in 1996. | |
| 4. What are the main dimensions of competition? Are companies specialising in low-tech cheap products? How important are different regional characteristics for the companies' competitive success? For example, how important is the availability of a cheap workforce? | With respect to the role of regional characteristics and of different dimensions of competition the case studies confirm the important role played by net labour cost advantages in maintaining the attractiveness of Central Europe as a manufacturing location. In this context the rapid wage assimilation between West and East Germany posed a particular problem to East German companies. Since it is net labour costs which count in this context, it is not enough for a workforce to be cheap, but it also has to be well-trained and sufficiently productive to constitute a competitive advantage. It is this combination which allows both East German and Hungarian companies to strive for niches in which they provide products of Western quality at lower prices. | |

## Chapter 5:

# Conclusions

A noticeable pattern is that the academic literature and investors frequently endorsed restructuring measures which turned out to be 'right' for the East German companies and 'wrong' for the Hungarian ones. The second startling feature of my case studies is the evidence of total industrial devastation in East Germany. In this conclusion I argue that these observations are related to three recurring themes: local idiosyncrasies matter, the past matters and the future should not be rushed.

That **local idiosyncrasies matter** might seem banal, but it is not. My case studies show that academics, as well as foreign direct investors, frequently endorse catch-all restructuring measures. In doing so they implicitly assume that the wider social, legal, economic and cultural transition environment is already sufficiently similar to that of a developed and stable market economy for policies developed elsewhere to work well. Especially policy prescriptions assuming in any way that markets work well and information is abundant are not suited to address situations in which creating markets under a high degree of uncertainty is the problem to be addressed in the first place. The surprise many western managers expressed, for example, about unexpected responses by Hungarian consumers, suppliers, employees etc. shows not only a general lack of awareness of the fact that restructuring measures a constrained by and interact with their wider environment, but also of the critical dimensions of difference.

To illustrate the problems associated with a blanket approach to restructuring imagine that there are two successful football managers from northern Italy, who both speak no English. One of them is asked to take over an ailing second division team in southern Italy and the other an English team. They arrive at their respective new jobs in the firm belief that their experiences gained and methods used in northern Italy will soon catapult their new teams into the first division. Whom would you expect to have a greater a priori change of succeeding?

A comparison between enterprise restructuring in East Germany and Hungary is especially well-suited to examine these issues. Not only does East Germany share strong language and cultural ties with West Germany, but through re-unification East Germany adopted West German laws, financial and political institutions and became part of the West German industry structure. Over night all the 'right' institutions and incentives were in place. In Hungary, however, local idiosyncrasies persist, which cannot simply be put down to widespread illegality and chaos. Hungary does not provide an illustration of how agents behave when the legal system is entirely ineffective, ethnic tension is high, corruption is rife and/ or the Mafia is the main rule-enforcement agency. Unlike less fortunate transition economies, Hungary is reasonably stable in all these main dimensions underpinning the transformation process and nevertheless it still yields different restructuring outcomes from those in East Germany.

A clear illustration is provided in Chapter 1. The observation that under central planning companies were far more vertically integrated than is customary in market economies has resulted in the general assumption that vertical dis-integration is going to be performance enhancing. In my case studies Western managers, for example, showed a strong tendency to 'slim' their companies down by closing non-core units. On the other hand Hungarian managers, keen to reduce the unemployment impact of restructuring, tended to favour a policy of separating out non-core units, with the parent company frequently maintaining an ownership share in these newly founded subsidiaries. In the academic literature this 'Hungarian-style' restructuring of the boundaries of the firm has been generally interpreted as 'ambiguous' at best, with more sympathetic authors pointing to the risk spreading properties of cross-ownership and more critical ones suspecting that these measures merely create a cloud of confusion behind which non-restructuring or even criminal activities can take place.

Contrary to what might be expected my case studies clearly show that, in contrast to East Germany, vertical disintegration is not performance enhancing in the Hungarian companies examined. In retrospect the main reason seems rather obvious: For subcontracting to be viable a well-functioning supply market is necessary. Without the developed, competitive and stable West German background industry East German companies had direct access to, Hungarian companies benefit from remaining integrated or creating their own suppliers through 'ambiguous' restructuring measures.

Chapter 2 makes a similar point, only this time with respect to the internal provision of social services. In most market economies the provision of social services such as crèches and doctor's surgeries is not generally seen as the role of the enterprise sector. Consequently the suggestion is frequently made that the extent to which a company in a transition economy has shed the internal provision of such non-productive activities is one indicator of the extent of restructuring in that company. My East German data does indeed suggest that the internal provision of social services was almost without exception the first thing to go. In Hungary, however, the situation is different. Even companies with FDI show a strong persistence in social service provision. What is more, companies showing such persistence outperform others in terms of their profits, domestic market share and exports.

Maintaining the internal provision of social services has different efficiency implications in Hungary and East Germany. Employees in East German companies became integrated into the West German social security system and experienced rapid wage assimilation. For this reason abolishing the internal provision of social services caused little friction and enabled the companies' to increase their per capita productivity. On the other hand, many Hungarian employees not only feel that social service provision is an intrinsic part of their company's traditions, one of the few tangible benefits of decades of building socialism, but they also fear that there would be few alternative providers they could afford. A general tenor is 'if you want to close these services pay us Western-level wages first.' Even though happy employees are not necessarily productive ones, disgruntled employees can certainly cause a lot of

conflict which hinders the restructuring process overall. My case studies show that generally in Hungary too foreign investors attempted to cut these services back. They soon relented, however, when such measures invariably caused severe friction with their workforce. On the other hand culturally sensitive and 'humane' managers were generally rewarded by a co-operative workforce willing to do its bit for the company's long-term survival.

Chapter 3 most clearly illustrates the notion that local idiosyncrasies matter. The widespread assumption that companies with FDI will outperform their rivals because of knowledge transfer from their investor and his role in introducing new products and production methods is borne out in the East German data only. My Hungarian case studies provide many examples in which investors endorsed inappropriate restructuring measures by not realising, for example, the popularity of local brands or the analogy between socialist brigades and project groups. In this context successful companies give competent local managers a say in the restructuring process. They might need to be trained in areas such as marketing and finance, but at the same time they posses valuable historical and cultural knowledge. Transition is a two-way learning process: since enterprises have to restructure in a way which is appropriate to their local environment, investors frequently find that what works well in their head offices and domestic markets does not work well in their subsidiary. What might be optimal in one context is not necessarily so in another. Competent local managers can help investors understand why.

The idea that local idiosyncrasies matter closely relates to a second underlying theme, namely that **history matters,** not only in the sense that it frequently gives rise to and explains local idiosyncrasies. Chapter 4 illustrates how historical factors also influence a company's underlying restructuring capability. Flexible supply side responses to the challenges posed by transition are much more likely in companies which have a pre-existing export experience, that is they are used to producing internationally competitive products and have experience in international markets. There is no clean slate in enterprise restructuring, frequently the past provides the building blocks for the future.

Although there are situations in which transition would never get off the ground without revolutionary measures, my case studies nevertheless indicate that frequently **the future should not be rushed**. There is an underlying tension between experiencing too little pressure for change, resulting in insufficient restructuring, and too much pressure for change, resulting in destruction rather than restructuring. In other words, is evolution preferable to revolution? My case studies show that if the transition process overall is sufficiently credible, a lot can be said for a slower pace of change.

Chapter 4 illustrates this contention. Trade liberalisation is a fully credible policy goal in both Hungary and East Germany. Crucially, however, in the case of East Germany trade liberalisation occurred almost over night with reunification, while Hungary is

more gradually preparing for EU membership. In addition Hungarian wage levels are approaching western-levels much more slowly than East German ones.

The result of early and radical trade liberalisation in East Germany has been the devastation of its manufacturing base. With the exception of the construction sector, East German companies have deserted their domestic suppliers in favour of stable West German and EU suppliers. At the same time in their domestic output markets the East German companies examined have experienced radical falls in their overall demand and market share as a consequence of the availability of attractive substitutes from the West and a near-total collapse in industrial demand. Breaking into a frequently hostile West German market became a matter of survival. The prospects for East German re-industrialisation in the foreseeable future are bleak: market access, agglomeration and wage cost considerations do not clearly favour East German production sites over West German ones, especially when many West German industrial sectors are characterised by overcapacity.

On the other hand cost advantages and demand idiosyncrasies have partially protected many Hungarian industrial sectors from unfettered competition by multinationals. This has enabled capable companies to genuinely restructure. Restructuring is a complex learning process which takes time to implement. The immediate and intense competition suffered by the East German companies left them with no time to learn. Excessively speedy trade liberalisation became a recipe for enterprise destruction rather than restructuring.

The notion that there is only that much simultaneous change an organisation or individual can cope with was also all-pervasive in the personal accounts given to me by interviewees. For example Hungarian subsidiaries of foreign companies were in one instance judged to be the worst possible suppliers because the multitude of their investors' change initiatives left them in even more chaos than usual. Many trade union representatives gave illustrations of the apathy and feeling of powerlessness which yet another initiative to encourage 'self-determination', 'responsibility', 'efficient work practices' etc. brought about in employees.

In a transition environment the pressures for change crush down on a company from all sides: customers are making new demands, suppliers are overburdened, new competitors and new opportunities arise, the rules of the game change. In this situation it is tempting to try and address all problems at once. There is a Hungarian saying, however, that people who grab much end up holding little. Sometimes there is no time for evolution. If there is, however, a company can benefit from carefully working out its most profound problem, which usually relates to its products and product markets, and then introduce change in that area. Afterwards it will become clear how the organisation as a whole is affected by this initiative and which follow-on changes are necessary. To maintain an organisation's efficiency, change has to be genuine and targeted during radical restructuring processes.

I hope that this study will be conducive to future research. Should we accept the hypothesis that restructuring outcomes are highly dependent on the wider social,

cultural and economic structures they are embedded in, then my findings suggest that there is a need to examine the precise nature of this dependency in future empirical and statistical work. Since my case studies illustrate the challenges of enterprise restructuring under extremely strong pressures for change, my results should also have a wider applicability for restructuring and change management processes in general. In this context it would be interesting to apply the same methodology to a set of restructuring companies in two different market economies. This would help to distinguish between factors which apply to restructuring enterprises in general and those which are unique to the transition environment. Similarly extending the study eastwards would help to examine the additional challenges posed by even higher levels of legal, political and economic uncertainty. The biggest problem faced by my study is, of course, the relatively small number of observations. The ideal solution would be to conduct a large sample survey for which the case studies can act as an interpretative framework. Follow-up visits to the participating companies could yield insights into the later stages of restructuring. In Central Europe the initial enterprise restructuring phase might be nearing its end, but many research challenges remain.

# Appendix 1:
# English translation of the questionnaire used:
# East German version[1]

***Interviews were conducted in East Germany between August and December 1996, in Hungary between March and August 1997, follow-up phone calls were made in 1998***

## A. The situation in 1996, 1997

**Interviewpartner**
Name, Date, Company, Position in the company, Responsibilities

Name of the company
Address
Industrial sector
Name of the investor
Number of employees in 1996, expectation for 2001 (2Pt = 1Ft)
- Part-time
- Full-time
- Blue-collar
- White-collar

Sales volume after tax in Million DM
Are you profitable? Yes/ No

## B. The situation before 1990

**Interviewpartner**
Name, Date, Company, Position in the company, Responsibilities

1. To which conglomerate (Kombinat) did your company last belong?

2. Where was the head office of this conglomerate?

PRODUCT
3. Which were the most important products of your company before 1990?

4. Number of employees in 1990
- Part-time
- Full-time
- Blue-collar
- White-collar

KNOW-WHY
5. Did the company with this address have a particular responsibility in the conglomerate for
- certain commercial activities
- certain activities on the value added chain
- certain product groups
- certain markets

MARKETS
7. Which percentage of your final output did you sell before 1990

[1] In designing this questionnaire I am deeply indebted to Professor Gernot Grabher and Professor Bruce Lyons.

- within the Bezirk (corresponded to an administrative unit of about the size of a county) in which you are located
- within the former GDR
- within countries of the former Eastern Block?
- within West Germany
- to other companies in your Conglomerate?
- other

INTEGRATION

6. Which functions were catered for (1) directly in this company [separate internal division], (2) in other companies belonging to the same Conglomerate (3) bought from external sources?

- Bilanzierung (basically seeing whether production is following the plan given from above)
- investmentplanning
- personnel
- product development
- process development
- input procurement
- maintenance
- distribution
- transportation

7. Which social functions (e.g. summer camps, kindergartens...) were integrated into your company?

## C. Changes since the acquisition by the investor

**Interviewpartner**

Name, Date, Company, Position in the company, Responsibilities

1. When were you acquired? (All the companies in the sample have a 100% ownership by the investor)

2. How high is the size of the employment guarantees and the investment guarantees given by the innovator to the Treuhand? (guarantees given, until 1996 fulfilled, expected up to 2001)

3. Which sanctions were agreed upon in the acquisition deal?

PRODUCTION

3. Which are your most important products? (Since when in production, proportion of total sales before FDI, expectation until 2001)

4. For the products which you have kept on producing after FDI, to what extent has their value added changed?

5. For your new products: Would you say that they require, in comparison to your old products more, equal or less

- technological know-how
- modern production technology
- organisational knowledge
- qualified personnel ?

6. From where did the main impulses for the changes in your products come?

- Investor
- Treuhand
- management consultancies
- important customers
- industrial associations
- exhibitions, fairs

- the "old" managers
- R&D
- other

7. Who controls how frequently and using which criteria whether the goals you are aiming for through these changes in your products are achieved?

INTEGRATION

8. Which activities are at the moment being a) internally supplied, b)supplied by the investor or are being c)bought from external sources?
   - R&D
   - Design
   - Computing facilities
   - Supply procurement
   - quality control
   - maintenance
   - transportation
   -sales
   - marketing
   - customer services
   - personnel

9. Which are in your opinion the main advantages and disadvantages of this division of labour?

10. How would you like to see this division of labour develop up to the year 2001?

11. According to which criteria have you changed your position on the value-added-chain?
   - costs
   - capacity
   - know-how
   - flexibility

MARKET

12. Which percentage of your total output do you sell in
   - the Land in which you are located
   - the New Länder
   - the Old Länder
   - the EU
   - directly to your investor?
   - other

13. How have your market shares changed? (1990, 1996, expected 2001)
   - East Germany
   - West Germany
   - Eastern Europe
   - EU
   - Overseas

14. How would you characterise the competition which you face? (before FDI, after FDI)
   - mainly small companies
   - mainly large companies
   - a large number of competitors
   - a small number of competitors

15. Where were your main competitors located before 1990?

16. (agree do not agree 1 to 6) The main dimension of competition is nowadays....
- price
- quality
- punctuality in delivery
- design
- other

17. What is in your judgement the main reason why your business partners turn to you rather than your competitors?

18. Which changes would improve upon your competitive situation?
- internal (e.g. service, quality, organisation..)
- external (improvements in the infrastructure, policy changes...)

PRODUCTION METHODS

17. To what extent has the composition of overall production methods changed?
(before FDI, 1996, 2001)
- production runs comprising individual units
- small series
- large series
-mass production

18. Since the FDI, which were the three largest investments into the production process?

19. judging by sales volume, which were the three largest closures in production?

20. Which of the following technologies/ processes do you use in your company? (already before FDI, since FDI, expectation)
- computers in the commercial area
- computers in production planing
- computers in production co-ordination
- computers in R&D
- computers in the management of your stocks
- CAD
- NC
- CNC
- Industrial robots

21. How old are (on average) the machines which are most important for your production?

22. How old is the average technical lifetime of your machines?

23. From were did the main impulses for the changes in production come?
External:
- investor
- Treuhand
- management consultancies
- important customers
- trade associations
- trade fairs
- other
Internal:
- "old" management
- R&D
- other

24. Who controls using which criteria the attainment of the goals envisaged by the changes in production?

## D. The relationship to your investor

**Interviewpartner**
Name, Date, Company, Position in the company, Responsibilities

1.1 In case there is vertical integration between you and your investor: How high is the procentual proportion of your total output that you sell directly to your investor?

1.2 How high is the proportion of total output that you sell to your other main customer, who is not your investor?

2.1 How would you describe the price of "in-house-sales"?
- prices with profit margins which are typical of those obtained in this company
- prices with profit margins which are typical of our industrial sector
- prices with a narrow profit margin
- just or hardly cost covering prices

2.2 How would you describe the prices which you obtain for "out-of house" sales?
- prices with profit margins which are typical of those obtained in this company
- prices with profit margins which are typical of our industrial sector
- prices with a narrow profit margin
- just or hardly cost covering prices

3. For the proportion of your output that you sell out of house, how is the pricing decision made?

4. How biding are quality control requirements demanded a) by your investor b) by your other main customer?
- absolutely binding
- relatively binding
- have the proposal nature

5. What happens if the quality control procedures which have been suggested by a) your investor and b) by your other main customer are not implemented?
- the requested procedures are implemented
- nothing
- the dissolution of the business contact might be threatened
- we have to expect the loss of the contract
- other

6. How frequently are there control inspections by a) your investor and b) your other main customer?

7. To the extent that there have been in the past disagreements over issues such as the interpretation of a contract or quality control issues, how have these been resolved in your judgement?
- a fair compromise was found
- the supplier had to make the main concessions
- the customer had the mainly compromise

8. Are there any tasks that you solve together with a) your investor b) your other main customer?
- R&D
- common investment into tools/machines
- common management of the stocks

- other

9. Should serious problems develop in your supply relationship with a) your investor b) your other main customer, how are these resolved?
- there is close co-operation and common problem solving
- the parties are allocated separate problem areas but there is co-operation
- there is rather sporadic communication concerning the most important matters
- everybody solves there problems, to the extent that this is possible separately

10. How strongly does a) your investor b) your other main customer take into consideration (not at all:1--->very strongly 6)
10.1 principles of fairness
10.2 ideas of fair-reaching co-operation
10.3 your wishes and ideas

**E. Changes in human resource management (2 times, one interview with the personnel manager and one with the trade union representative)**

**Interviewpartner**
Name, Date, Company, Position in the company, Responsibilities

1. Number of employees in 1990, 1996, expectation for 2001 (2Pt = 1Ft)
Part-time
Full-time
Blue-collar
White-collar

2. Which percentage of your employees is unionised? (Not applicable in German companies)

3. To which union do your employees belong?

4. Which are the main challenges which your company faces in its personnel policies?

5. How were the dismissals which became necessary in the context of restructuring handled?

6. In your opinion, do the new production methods which have been introduced since FDI (or, were applicable after 1990) higher equally or less qualified personnel?

7.1 Which further training became necessary as a consequence of the changes in production?

7.2 Who has provided and financed this training?

7.3 Which importance does your company ascribe to further training?
- unimportant
- secondary, but not unimportant
- very important but time constraints ( ) or financial consideration ( ) hardly make it possible for us to provide our workforce with additional training
- very important, and even though we face the above problems, we make it possible for employees to occasionally visit courses etc.
- very important, and we make sure that each employees receives further training

7.4 How company specific are the skills acquired through this further training?

8.1 Have you introduced new forms of work organisation?
- quality control groups
- job rotation

- job enrichment
- flexible working hours
- project groups
- other

8.2 Why have you introduced the changes in 8.1

8.3 Are there any forms of work organisation which you have abandoned?

8.4 Why did you stop the forms in 8.3?

8.5 How has labour productivity developed?

9.1 Are there any (übertarifliche Sozialleistungen) social services which are provided by your company over and above those incorporated into the Tarifvertrag?

9.2 If yes, which are these?

9.3 Which social services have been stopped since FDI?

10.1 Are there demands on the side of the employees concerning:
- company social services
- personnel policies
- involvement in the introduction of new technologies/ production methods
- work load
- work organisation
-other

10.2 In case there are demands, do you think that they are justified? (1 very justified---->6 unjustified)

10.3 If you think that the demands in 10.1 are rather unjustified, what do you think they are due to (1 entirely, 2 partly)
- the interests of individual employees
- the policies of the trade union representative
- dissatisfaction with the work
- bad company climate
- good company climate
- political interests
- illusions
- other

11. Please try to characterise your company (1 agree----> 6 do not agree)
Our company
1.1 uses conservative and traditional management principles
1.2 uses modern organisational approaches
2. interprets itself as the social community of the workforce
3. sees employees mainly from the perspective of economically rational human capital usage
4.1 attempts to enhance the independence of employees
4.2 limits the independence of the employees in the interest of clearly defined areas of responsibly

In our company
5.1 conflicts are seen as avoidable
5.2 conflicts are seen as necessary for finding and implementing real solutions to problems
6.1 we view the Betriebrat as a legal requirement but a disturbance

6.2 we view the trade union representative as an important Partner in decisions concerning our company

**F. The regional effects of FDI: Structural changes**

**Interviewpartner**

1. How important are the following regional characteristics for the success of your company? (large, small, insignificant)
   - availability of a highly qualified workforce
   - availability of a cheap workforce
   - proximity to the most important customers
   - proximity to the most important input suppliers
   - proximity the suppliers of services needed by the company
   - proximity to research institutions
   - a competent local government
   - a relatively well developed infrastructure in the region
   - other

2. How important were the following regional characteristics for the investment decision of your investor?
(large, small, insignificant)
   - availability of a highly qualified workforce
   - availability of a cheap workforce
   - proximity to the most important customers
   - proximity to the most important input suppliers
   - proximity the suppliers of services needed by the company
   - proximity to research institutions
   - a competent local government
   - a relatively well developed infrastructure in the region
   - other

3. How has the geographical distribution of your input suppliers changed? (Please give approximate percentages, 1990, 1996, 2001)
   - Berlin/ Brandenburg area
   - East Germany
   - West Germany
   - Eastern Europe
   - EU
   - other

4. How high is the proportion of standardised merchandise (Catalogue listed products) in your entire input demanded?

5. From where do you primarily procure such standardised products? (primary source/ secondary source)
   - Berlin/ Brandenburg area
   - East Germany
   - West Germany
   - Eastern Europe
   - EU
   - other

6. According to which criteria have you changed (indicate nature of the change) your position of the vertical chain?
(primarily, secondarily, unimportant)
   - costs

- capacity utilisation
- know-how
- flexibility

7.1 How high is the proportion of "old" suppliers (those which whom you were in contact before your investor approached you) in relation to the total number of suppliers?
- standard products_____%
- customised products_____%

7.2 How high is the proportion of suppliers which also belong to your investor?
- standard products_____%
- customised products_____%

8. Which were the main reasons to maintain your contact with the "old" suppliers? (primarily, secondarily, unimportant)
- price
- quality
- proximity
- good experiences in the past
- willingness to cater for special requests

9. According to which criteria do you choose your new suppliers? (primarily, secondarily, unimportant)
- price
- quality
- existence of quality control processes
- punctuality
- belonging to the same conglomerate
- other

10. Which were the main reasons why you have stopped using certain old suppliers?

11. Do you think that there is a difference between suppliers located in the East Germany and those located in West Germany?

12. How think will your supply arrangements develop in the next 3 to 5 years?

## G. The relationship the your suppliers

**Interviewpartner**

1.1 How frequently do you evaluate your suppliers according to a set routine?

1.2 Which factors do you consider in your evaluation?
- punctuality
- proportion of faulty supplies
- quality standard of the products supplied
- quality control procedures
- other

2.1 What kind of agreements do you have with your suppliers concerning quality purchased?
- a fixed number of units
- binding quantity agreements
- minimum number of units/ quantity
- other

2.2 (1 agree-----> 6 disagree) We take into consideration the need of our suppliers for stable and continuous orders.

3. How long are your contracts with suppliers normally?

4. What are the main reasons for this time-frame?

5. Are there any tasks which you solve together with your suppliers? (frequently, seldom, never)
- R&D
- common investment into tools/ machinery
- common stock management
- other

6. With which arguments do you try to get your suppliers to make maximal concessions?
- buying at the competitors
- stopping the supply relationship
- situation in the final market
- other

7. To the extent that there have been disagreements between you and a supplier concerning the interpretation of, for example, the supply contract or the implementation of quality control processes, how would you describe the resolution of these differences? (1: applies-------->6 does not apply)
- we have found a fair compromise
- the supplier had to make the largest concessions
- the customer (we) had to make the main concessions

9. Should serious problems develop in your supply relationship with one of your suppliers, how are these resolved?
- there is close co-operation and common problem solving
- the parties are allocated separate problem areas but there is co-operation
- there is rather sporadic communication concerning the most important matters
- everybody solves there problems, to the extent that this is possible separately

10. How strongly do your suppliers take into consideration
(1 very strongly---> 6 not at all)
10.1 principles of fairness
10.2 ideas of fair-reaching co-operation
10.3 your wishes and ideas

10.4 I trust my suppliers not to take advantage of my company should the opportunity arise. (1 very strongly---> 6 not at all)

10.5 Our suppliers trust my company not to take advantage of them should the possibility arise (1 very strongly---> 6 not at all)

11. We keep to agreements with our agreements with our suppliers because (1 agree----> 6 do not at all agree)
11.1 We are contractually bound
11.2 We would like to maintain the business relationship with our suppliers in the future
11.3 We are concerned about our reputation with other companies
11.4 This is the common practice in our industrial sector
11.5 Personal friendship with the suppliers leads me to keep to agreements
11.6 Personal honour (I always keep my promises) motivates me to keep to agreements

12. Why do you think do your suppliers keep to agreements with you? (1 agree----> 6 do not at all agree)
12.1 They are contractually bound

12.2 They would like to maintain the business relationship with us in the future
12.3 They are concerned about their reputation with other companies
12.4 This is the common practice in their industrial sector
12.5 Personal friendship with us leads them to keep to agreements
12.6 Personal honour (I always keep my promises) motivates them to keep to agreements

13. What characterises in your judgement a successful relationship with a supplier?

14. What determines the success of a business relationship with a supplier? (1 agree----> 6 do not at all agree)

- our willingness to cater for extra-contractual requests of our suppliers is important
- our supplier's willingness to cater for our extra-contractual requests is important
- mutual co-operation is important
- mutual trust is important
- personal contact is important
- a prompt payment of the inputs bought by us is important
- mutual information concerning technological developments is important
- it is very important that our supplier informs us about reductions in his raw material costs

## Appendix 2:
## The statistical questions involved[2]

Throughout I examine whether the variables collected in the case studies yield any statistically significant associations, that is whether I can detect ant statistical regularities in may data. I am fully aware that I have a rather small number of observations for such an enterprise. The first thing to stress is that throughout I do not generalise to entire populations. I do not, for example, claim that *all* Hungarian companies behave in a certain way. Rather on the basis of the statistical regularities which hold for my data set only I generalise to theoretical propositions. Nevertheless even the use of small-sample significance tests cannot fully eliminate the problems posed by the small number of observations. Consequently especially associations of a 10% significance levels should be treated with some care and they should not serve as the basis for any strong conclusions. Rather they indicate fruitful avenues for future research benefiting form a larger data set.

What I am interested in my study is a) the existence of an association, b) its direction and c) its statistical significance, but *not* in assigning a precise numerical value to the association in order to give it an economic interpretation. All the correlations reported in the relevant tables were obtained using Excel.[3]

**1. For testing the significance of an association between two dummy variables** a chi-square test of independence using contingency tables is used.[4] Chi-square tests are non-parametric and require no assumption about the exact shape of the population distribution. The null hypothesis is that the two variables are independent, which is another way of saying that there is no association between them. The null hypothesis can be rejected if $X^2$ (obtained/ corrected) > $X^2$ (critical) and in this case the association between the two dummies is unlikely to have been generated by chance alone.

In the cases where the data set is large enough to generate expected frequencies of more than 5 in each cell in the relevant contingency table the following formula is used:

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[2] I would like to thank Dr. Dennis Leach for his help in statistical matters. This section is based on *Statistics* by Joseph F. Healy, 4th edition, Wadsworth Publishing Company, 1996, *Modern Elementary Statistics* by John E. Freund,, 7th edition, Prentice-Hall, 1988 and *Statistics for Business and Economics* by Paul Newbold, 3rd edition, Prentice-Hall, 1991

[3] The correlation coefficients are all based on Pearson's *r*, which is essentially a measure of a linear association between two interval-ratio variables. However, my data also contains associations involving dummies (qualitative variables which are measured at the nominal level). I find that firstly, nominal based measures of association such as LAMBDA and PHI yield similar numerical values as those obtained from Excel. Secondly, even if I used nominal rather than the interval ratio based measures of association, the numerical values obtained could not be given a precise economic interpretation in my study. For the purposes of hypothesis testing I treat the discrete variables in my data set as continuous ones.

[4] The same approach was used for testing the hypothesis that the observations for two country-specific dummies can be pooled, that is when examining whether there are significant country-specific differences in the data set.

$$X^2 \text{ (obtained)} = \Sigma (f_o - f_e)^2 / f_e$$

The degrees of freedom of this $X^2$ test statistic is given by the formula:

$$df = (r-1) \bullet (c-1),$$

where (r-1) is the number of rows in the contingency table minus one and (c-1) is the number of columns minus one. For two-times-two tables where the expected frequency in at least one cell is less than five, the above formula is modified by applying Yate's correction for continuity:

$$X^2 \text{ (corrected)} = \Sigma (|f_o - f_e| - 0.5)^2 / f_e .$$

A two-times-two table always has one degree of freedom regardless of the number of cases in the sample.

**2. When testing the significance of the correlation between a dummy and a continuous variable** a t-test is used which tests whether the differences in the means of the two data sub-groups (of the continuous variable) generated by the dummy are significant or not. This test is appropriate for small sample sizes, especially when the population standard deviation is unknown. However, when using t-tests in general, one has to assume that one is dealing with independent random samples, the level of measurement is the interval ratio, the two samples have equal population variances and the sampling distribution is normal.[5] The null hypothesis is that the means of the two sub-samples are identical, that is $\mu_1 - \mu_2 = 0$. If one can reject the null because $t$ (obtained) > $t$ (critical) we can conclude that the differences between the means of the two (continuous variable) sub-groups generated by the dummy are significant and that therefore the correlation between the dummy and the continuous variables is significant. The relevant test statistic for differences in means of small samples is:

$$t = \mu_1 - \mu_2 - \delta / \sqrt{ [ \{(n_1 - 1) s_1^2 + (n_2 - 1) s_2^2 / n_1 + n_2 - 2\} \bullet (1/ n_1 + 1/ n_2)]}. \ ^{6}$$

This statistic has $n_1 + n_2 - 2$ degrees of freedom.

**3. When testing for the significance of the correlation between two continuous variables** we again use a small sample t-test[7]. As before, this assumes random

[5] It is worth noting that in this case these assumptions apply to the sample means which are the objects of our tests, not the series of dummies which have generated the means in the first place.

[6] The most general formulation of the null hypothesis is that $\mu_1 - \mu_2 = \delta$. If we are, as in my case, testing the null that $\mu_1 - \mu_2 = 0$, then $\delta = 0$ in the above formula. $n_1$ and $n_2$ are the number of observations in sub-sample one and two respectively. This test (rather than the appropriate $z$ test) is used when, as in my case, $n_1 < 30$ or $n_2 < 30$. $s_1^2$ and $s_2^2$ are the sample variance of sub-sample one and two respectively. They are in each case calculated using the formula: $s_i^2 = \Sigma (x - \mu_i)^2 / (n_i - 1)$, where x is an individual observation in sample i, $\mu_i$ is its mean and $n_i$ is the number of observations in i.

sampling, that the level of measurement is the interval ratio and that both variables are normally distributed. In addition, this t-test also assumes that the relationship between the two variables is roughly linear in form and fulfils the assumption of homoscedasticity, that is that the errors, $u_i$ in a given bivariate regression (this is what correlations effectively are) have a common variance. Differently formulated, homoscedasticity requires that the variance of the scores for variable $Y$ are uniform for all values of $X$. For our purposes the visual inspection of a scattergram should usually be sufficient to appraise the extent to which the relationship at hand conforms to the assumption of homoscedasticity. The null hypothesis tested is that $\rho = 0$. If we can reject the null [$t$ (obtained) > $t$ (critical)], this indicates that the correlation between the two variables at hand is significant.
The formula for the relevant t-statistic is:

$$t = [r \bullet \sqrt{(n - 2)}] / \sqrt{(1 - r^2)},$$

where r is the correlation coefficient for the two variables at hand and n is the number of (pairs of) observations. This t-statistic has n-2 degrees of freedom.

[7] This test was also used when I explored whether there are significant differences between the means of two country-specific continuous variables.